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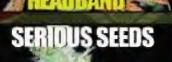
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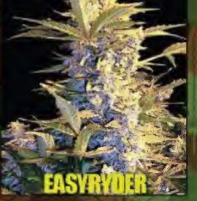
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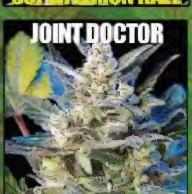
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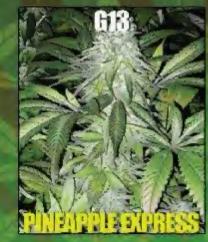


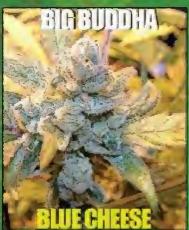
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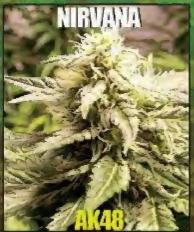
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As the amount of pot produced annually skyrockets, the cultivation equipment marketplace flouri

The growing industry is a growing industry! As most other businesses struggle to emerge from the recession, marijuana farming-equipment companies continue to expand and thrive as more and more people decide to take matters into their own hands and start raising their own cannabis. With the needs of all these new growers in mind, we at HIGH TIMES present our 12th Annual S.T.A.S.H. Awards (short for Significant Technological Achievements in Secretive Horticulture), our picks for the best cultivation products in the world.

Products that make our esteemed list have to meet several criteria. They must ease the burdens of growers as well as increase their yields. They must be simple to use while also guaranteeing heavy harvests. We've traveled to hydroponic-industry conventions from Spain to Canada and visited cannabis gardens throughout the United States to find the most innovative horticultural lighting, grow trays, plant nutrients and all-in-one growboxes around—items that indoor and outdoor ganja gardeners are sure to appreciate.

Along the way, we've also learned new tips and tricks to help beginners and experts alike grow bigger buds and produce more connoisseur-quality medical marijuana than ever before. In this issue, you'll find helpful hints on everything from organic pest control (page 38) to indoor garden design (page 116). Check out our "3 Easy Ways to Get Started" feature (page 66) for a few handy ideas on how to set up your first grow, and take an inside peek at California's cannabis dispensaries to see what's possible for all of us down the road (page 79).

All in all, the issue you hold in your hands is a pot-packed horn of plenty meant for newcomers to the grow scene as well as longtime weed aficionados. Add to that Dan Skye's hilarious interview with pot-friendly comic D.L. Hughley, Bobby Black's Doobie Awards coverage and managing editor Natasha Lewin's trip to the Kentucky Derby, and you've got a well-rounded look into a cannabis community that continues to keep on growing!

Danny Danko Senior Cultivation Editor



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34 THE 2010 DOOBIE AWARDS **BY BDBBY BLACK**

Seven bands and six-foot vapor bags were among the highlights at this year's annual music-awards party and Cowboy Cup at the SXSW festival in Austin, TX.

38 ORGANIC PEST CONTROL, PART II BV HUGH ITËLDER

Two months back, we began with a lesson on growroom hygiene and some basic preventative measures for pest and disease control. This second installment goes even deeper, examining specific insects, molds and diseases that can afflict your garden. It also offers a comprehensive list of natural, organic solutions to combat these pests as well as ideas on how to keep your growroom safe without the use of commercial pesticides.

48 THE 12TH ANNUAL S.T.A.S.H. AWARDS BY ERIC SCHDNER

The HIGH TIMES Cultivation Department presents its annual rundown of the best gear of the year to assist cannabis farmers in their never-ending quest to increase yields and decrease workloads. Try these handy pot-production products in your own growroom for better efficiency with less effort!

66 3 EASY GARDENS BY FELIX GREEN

Given all the new indoor growers trying to achieve marijuana self-sufficiency these days, we offer beginners an introduction to the merits of both hydroponics and soil, as well as three easy gardens that anyone can set up in their own home to get growing simply and quickly.

79 DEFENDING DISPENSARIES

BY DAVID BIENENSTDCK

The media often portrays the dispensary scene in California and Colorado as some kind of "Wild West," but our insider's look reveals that America's \$2-trillion-per-year health-care industry could learn a lot from the best dispensaries when it comes to putting patients before profits. Plus: A guide to landing your own green job!

86 HIGH TIMES Interview: D.L. Hughley **BY DAN SKYE**

If you're looking for a comic who can take the essence of reality, turn it inside out, and make you laugh your ass off, then you're looking for D.L Hughley. In this exclusive HT interview, D.L. gives you the DL on just about everything on his mind.



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12 HIGHWITNESS NEWS/BUZZ EDITED BY DAN SKYE

Watermelon returns; Wal-Mart evil; Radio to the rescue; Statistical lies; Montana firebombing; Marc Emery extradited; Hats for heads; Cannabis bling; Showbuzz: Activist icon Gatewood Galbraith; Kentucky-Fried Story; Jucifer; Brian Jonestown Massacre; Liars; Reviews; Brain Damage Control; Band of the Month; Miss HIGH TIMES; Almost Infamous.

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EDITED BY DANNY DANKD & NICD ESCONDIDD Pix of the Crop; Cannabis Clinic; Munchies; NORM-Lizer; Freedom Fighter; Dr. Mitch; SSDP Report; Indoor Growing Guide; Dear Danko.

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140 POT 40

COVER: FREEBIE STRAIN: ASSORTED CENTERFOLD: FREEBIE STRAIN: LEMON SKUNK

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FEEDBACK

GLASSBLOWING ROCKS

Loved the Flameoff article! I managed to locate my old glassblowing partner, who works in Los Angeles now. He offered to let me use his torch and even sell my pipes for me. Sadly, it wouldn't be the same as the old days, when we would puff a hit after every pipe. Peace!

Mikey Neides

TO JACK

I recently learned of Jack Herer's death. I found a copy of his book,

The Emperor Wears No Clothes, at a used bookstore and read it several times. Jack was one of my heroes, and I think I even smoked his namesake bud once.

Mike

MISS HIGH TIMES Q

Okay, I've gotta go there: How come the HIGH TIMES lady of the month is always a slim, bikiniclad, twentysomething girl? Where are the normal-looking chicks, the average- or bigger-size women that represent a huge portion of your loyal readers?

I understand, of course, that your target demographic is probably males in their twenties or thirties. I'm just sayin'

Emily

HIGH FROM DOWN UNDER

I've only been reading HT for six months. I enjoy it, but I get jealous of the pics. In Australia, we don't get those breeds.

I was wondering if there's any way that the big pharmaceutical companies can be sued for neglect if Rick Simpson really does have affidavits and testimonials from people who have been cured of cancer using cannabis? Surely there must be some way to sue the companies that make ineffective cancer drugs for their neglect and disgusting profiteering off dying people, even in the US.

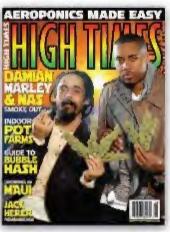
Ryan

PROUD VETS

Keep up the good work, Bobby. Just read your article on veterans caught up in the Drug War in the latest issue of HT ("The Thin Green Line," June '10) and was *very* pleased to see that something is finally being done. Ya'll will be hearing lots from me in the future. I'm just beginning an entire new life. A year ago, I didn't know what NORML was; now I'm a member. I am devoting the rest of my life to legalization and growing—maybe writing also. Peace and love, bro!

Billy Mac

Semper High, Mr. Black! I have been getting feedback from vets that toke. They tell me that if they piss positive, they'll be denied treatment. Meanwhile, these heroes are being forced to take large amounts of heavy-duty narcotics to deal with pain. Here is a quote from one vet: "Help us veterans



that have to follow the VA's pain contracts and are forced to take narcotics instead of smoking." I think helping these vets is what "supporting the troops" is all about—not just when they're on the battlefield, but when they come home, too. I may be in the New York area sometime in late May or early June and would very much enjoy it if I could stop in by you, maybe do lunch and a bowl. Thank you for what you do.

> Hemp Solo (I smoke pot ... SO WHAT?)

COLORADO MARKET QUOTES

Could you guys start including Colorado in the THMQ? I'm a Denver dank lover, and I'd like to be able to keep a better ear to the ground in my local market. Colorado had the longest section in the dispensary directory in the March "Top Glass of 2010" issue. I know that because I've got it sitting open in front of me—and in the very same issue, the THMQ has got someone talking about Colorado Springs–grown bud!

Your hazy homeboy, purplehazer7

The THMQ is entirely generated from reader submissions. We do our best to include every state in the THMQ each month. However, if we don't receive a submission from a certain state in a given month, that state is left out. The best way for people to ensure that their state regularly makes the THMQ is to submit their strain, price and location info to thmq@hightimes.com.

CANNABIS CRUSADER

I began my journey into the world of cannabis at age 12, and with six years of bud experience under my belt, I find myself with an overwhelming interest in the plant and everything about it. I often stay awake late at night reading HIGH TIMES articles that I have already read, simply because I want to read them again. Unfortunately, this sacred plant still isn't legal in the US, and although I hope for the best, I fear I may never see the end of prohibition.

I want to take an active role in the legalization of marijuana—not only for medicinal use, but for recreational and industrial uses as well. Honestly, I believe that until stoners around the world stand up for themselves and say, "We just wanna get high," we will never see the first legal 4/20 (which would certainly be a glorious celebration—one that would bathe the world in pot smoke!). Right now, one of my biggest "fears" is being forced to choose between my love for MJ and employment.

Keep up the good fight!!

Steve

Send your letters to: Feedback c/o HIGH TIMES, 419 Park Avenue South, 16th floor, New York, NY 10016. Email: hteditor@hightimes.com. We reserve the right to edit for length and clarity.





MONTANA DISPENSARIES FIREBOMBED

In early May, two medical marijuana dispensaries were firebombed in Billings, MT. In both incidents, rocks were thrown through the windows followed by Molotov cocktails. The fire scenes were also spray-painted with the message: "Not in our town." Locals believe the bombings were carried out by a radical group of area residents. The bombings came just before the Billings City Council was scheduled to meet to discuss regulating medical marijuana. Eighty-nine licenses for medical marijuana dispensaries have been issued and some city residents have voiced concern. The council voted to temporarily ban new medical marijuana businesses and freeze the businesses already in place. Billings police are working with the Bureau of Alcohol, Tobacco, and Firearms to apprehend the bombers.

DOGSCONTHECOROSSFORE

A video of a February SWAT team assault on a home in Columbia, MO, which was released in May, has gone viral. People are outraged by the needless terror inflicted upon a family, but the senseless killing of a pet raised a new level of awareness as to what the Drug War continues to be—a violent, wrongheaded assault on our rights. It's bad enough that American citizens involved with marijuana face the possibility of having their doors kicked in by law enforcement, and being threatened at gunpoint. But routinely shooting the family dog, which seems to be a policy adopted by law enforcement nationwide, is unforgivable in America. Just ask Michael Vick. Wouldn't animal handlers make more sense than firing live ammo? *Visit youtube.com/watch?v=RbwSwvUaRqc. Caution: graphic footage.*

Though "terrestrial radio" is on the downslide and losing ground to both satellite and Internet radio, there are still cool stations out there on the old-school airwaves, with none being cooler than KMUD-FM, broadcasting in Northern California's famed Emerald Triangle to 20,000-plus listeners.

KMUD goes beyond the standard nonprofit "community radio" station by broadcasting live warnings of incoming police helicopter raids to Triangle farmers. An example of a recent KMUD report: "Around 9:40 a.m. this morning, a large gray helicopter was seen taking off from the Garberville airport [in Humboldt County], apparently heading toward Reed Mountain. The occupants were fully dressed in combat gear, and the convoy of cars they arrived in were unmarked."

Law enforcement has objected to KMUD's unique PSAs. Mendocino County Sheriff Tom Allman expressed concern that these warnings will allow the Mexican drug cartels allegedly growing in the Triangle to arm themselves to the teeth in anticipation of raids on their wild gardens. Of course, these same "Mexican cartels" have been offered for years by Northern California cops and the Feds as a justification for conducting raids on legitimate Triangle residents. Moreover, in the last 15 years, much of the pot targeted has been intended for legal medicinal consumption, meaning those raids violated state law.



CONSPICUOUS CONSUMPTION

The newest addition to the "Was this really necessary?" category of new product ideas is the gold-plated Volcano Vaporizer. The standard Vaporizer already retails for \$539—ouch!—but if you really need to show the world that money—or common sense is no object, get it gold-plated. Contact Computer Choppers of Oregon. Plunk down \$1,495 for a gold-plated Volcano available online or send in your own and get it encased in gold or platinum; you can also have it decorated with jewelry or engraved. We suggest "I'M RICH AND STUPID." *Visit computer-choppers.com.*

THANKS, S MICK– WE THINK...

In May, Mick Jagger of The Rolling Stones came out for legalization of pot on the *Larry King Live* show. However, the 66-year-old rocker suggested a feeble way of getting there. "You usually try these things out in very small places," he said. "You know, like you try a new product out in a small kind of society or an island somewhere. In England, they always try out new mobile phones in the Isle of Man. They've got a captive society. So I said, you should try the legalization of all drugs on the Isle of Man and see what happens."

The Isle of Man, with a population of approximately 80,000, sits in the North Irish Sea between England and Ireland.

Mick then did some convoluted theorizing on drugs: "Human beings seem to have a propensity to want to take drugs in some form. It seems to be the propensity of human beings to want to use them. I think you have to take that as read, you know. But then what do you do when it affects so many people's lives, and not in a good way? And then also you get a lot of violence at both ends of the scope. So you get violence in some countries. That's the part that speaks to some sort of legalization. Because that, you would hope, would help the violence from both ends of the supply line."

We're pretty sure this is a statement of support.

MEXICO HARVESTS GOLOCO

Pot production in Mexico is climbing. Despite a massive offensive against Mexican drug cartels, cultivation in Mexico increased 35 percent in 2008 and continues to grow. According to the 2010 International Narcotics Control Strategy Report (INCSR) released by the State Department: "Despite the efforts of the

[Mexican government], drug cultivation rose significantly in 2009." In 2008, 12,000 hectares of land (the equivalent of 46 square miles) was used for

marijuana cultivation, up from 8,900 in 2007. This increase is a 16-year high. Meanwhile, eradication of plants has decreased.

The report specifies that the recent focus of the military and law enforcement on combating the rise of methamphetamines and violence of the cartels has fueled the increase in cannabis production and smuggling operations to the US.



EWIERY EXTRADITED

In May, the order to extradite Canadian cannabis activist Marc Emery to the US was signed by the Canadian Minister of Justice. Emery is the founder of the marijuana magazine Cannabis Culture and was the proprietor of Marc Emery Seeds, which distributed millions of pot seeds across North America. He now faces a 5-year stretch in a US federal prison for exporting those seeds to America. Marc's wife, Jodie Emery—who in his absence will continue to oversee the cannabis-related businesses that she and her husband have established—said, "I am absolutely devastated that this government has opted to send my husband, a Canadian citizen, to the United States for a crime that amounts to a \$200 dollar fine in Canada. This case is about silencing my husband for his marijuana activism. This Conservative government has declared a culture war in Canada and my husband is its latest victim."

SEPTEMBER 2010 13





COMES OUT! Remember when Bill Clinton was running for President back in 1992 and

famously declared: "I smoked marijuana, but I didn't inhale." Apparently Bubba wasn't lying. British author, essayist, and public "intellectual" Christopher Hitchens attended Oxford with Clinton when the future Prez was studying in England as a Rhodes scholar. Hitchens recalls: "He preferred, like many another marijuana enthusiast, to take his dope in the form of large handfuls of cookies and brownies."

Hitchens also believes Clinton ratted out American students who participated in anti-Vietnam protests to the London desk of the CIA.

THE SPORTING LIFE HURTS

If you're a pot smoker and happen to be a sensational athlete, expect nothing but pain. Andrew Lambo, a minor leaguer in the Los Angeles Dodgers baseball organization and a fourth-round selection in the 2007 amateur draft, was suspended a whopping 50 games for testing positive a second time for pot. Lambo is considered to be one of the organization's top outfield prospects.

The US Naval Academy dismissed star slotback Marcus Curry from the football team for lying about why he missed a curfew, but insiders say a drug test in December led to the harsh punishment. He reportedly told the brass that he hadn't known he was smoking pot; therefore it technically wasn't a violation. But the word is administrators never bought the story.

Nevadans for Sensible Marijuana Laws (NSML) came out in support of University of Nevada, Las Vegas basketball player Matt Shaw who was suspended for a year because of one positive test for marijuana. The suspension effectively ended his college career. "At the age of 22, Matt is an adult," said Dave Schwartz, NSML campaign manager said. "He made a rational decision to use a substance less harmful than alcohol. We hope all Nevadans will stop to think about this for just one moment—and think specifically about the fact that players who drink alcohol to excess face no punishment, at least until they assault someone. It simply makes no sense. And for those who say, 'He should have just followed the rules,' we say, 'Why do we have rules and laws that horribly punish people who choose to use marijuana instead of the more harmful substance, alcohol?' It is time for a change."

Vancouver model/activist Watermelon still cooks!

WATERMELON SWEET AS EVER

Our stunning two-time cover girl from Canada has been very busy since the last time she graced the pages of HIGH TIMES. Watermelon (yes, that's her legally changed name) was the star of the 2006 "Buds and Babes" calendar in the UK and has appeared in several pot documentaries, including *Escape to Canada, The Union: The Business Behind Getting High* and *Women in Weed.* All the while, her status as the high priestess of baked goods in her hometown of Vancouver, Canada, has remained undisputed.

Her Baked & Baking DVD from 2002 is still a steady seller. But

now she's starring in Baking a Fool of Myself (bakingafoolofmyself.com), a slickly produced, contemporary Web cooking show that teaches the modern stoner how to bake with shake, infuse booze, and create delicious treats with a special kick.

Each show features Watermelon's mouth-watering recipes, made with assistance from her reallife mom. If you can take your eyes off the dishy Watermelon long enough to focus on the dish she's cooking, you'll be preparing premium pot food in no time.

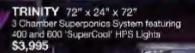
Lucky locals can sample Watermelon's culinary skills at her regular sampling parties. Invitees will delight in dishes like "spin-akopita" puff pastry, "waken bacon," black Sambuca marijuana ice cream made with organic cashew milk, or one of her infamous gin-and-chronics.

Watermelon is still a regular at Wreck Beach, Canada's best clothing-optional spot. She also performs in comedy/burlesque shows that she produces. Presently, she's working on her tango skills as well as a degree in philosophy. On top of *that*, she's making plans for the 70-year-old movie theater she recently purchased. This girl just never stops—except to spark one up. *Visit melongirl.com. For more shots of Watermelon, visit mariacoletsis.com.*



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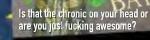
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KENTUCKY-FRED

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Don't let Kentucky fool you. It's a central state, technically, but everything about it screams "Southern"—biscuits

and gravy, bourbon, horses, baseball, seersucker suits, drawls. So let's dispel all the rumors right now: There is no restaurant at the top of the Louisville Slugger Bat, the Hotel Saratoga is not an actual hotel, Bloody Marys are an alternative to breakfast, and Kentucky is still—and always will be—a major ganja-growing state. (In fact, it's the No. 1 cash crop.) All those Kentucky exports, mixed with a little Southern hospitality, equals one stoned state.

nugget of Willy's Wonder.

Kentucky is also a commonwealth—one of four states in the nation with a government based on "the common consent of the people." The rule of the Kentucky is that there are no rules—unless you get caught.

My tour guide is J-Sho, a Kentuckian born and bred. She picks me up shortly after midnight at the Blue Grass Airport, where snow globes are

still allowed and a drink in your hand won't get you hassled, as long as you don't flaunt it.

We hit Ramsey's for lunch the next day in Lexington. It's a town favorite located on High Street (go figure). If you're a vegetarian, Kentucky will keep you on your toes—I stick to the green beans, fried green tomatoes and kale greens. J-Sho stops me before I take a bite to ask the waitress if they have bacon in them. Our server doesn't bat a lash: "They sure do, honey. Want some extra bacon on the side, too?"

On to the great Kentucky Bourbon Trail, home to such legendary bourbons as Wild Turkey and Jim Beam. We get our trail passports stamped at the Four Roses distillery. Remarkably, Four Roses was one of four distilleries allowed to stay in production during Prohibition—for medicinal purposes, of course. Sound familiar?

Derby-mania! And Abraham Lincoln

The free tour includes sampling the distillery's finest wares. We ask for seconds and get them. The only warning outside reads: "Please do not bring your handguns inside."

Then we head to Louisville, a 90-minute drive away. We stop in at what the locals call the "general store." Phones are ringing constantly. A pixieish woman in her early forties answers the one attached to her belt. "Hello, Mary. You're hungry, huh? Okay, give me an hour and I'll be over."

Then she answers the kitchen-table phone: "Yes, I have some sugar you can borrow. Give me 20."

"Everything is code words—'apple pie,' 'eggs,' they all mean something different," I'm told.

Nancy is a single mom who runs her own business and is also one of the biggest suppliers in town. "Everyone either knows her personally or

STORY Story by Natasha Lewin

Southern Culture on the Skidz at Headliners.

Bubblefunk and Northern Lights. Ben Lang of Louisville Glass Institute gets all fired up.

Fancy horses on the streets of Louisville.

The mint julep salesman makes a good pitch. Louisville runs through her," one of her clients tells me. Louisville legend has it that the show *Weeds* is loosely based on her life. In the backyard, folks are sampling her finest strains: Bubblefunk, Willie's Wonder and Northern Lights get packed, rolled and measured out for purchase. "I've got a bunch of cancer patients, many in wheelchairs. I have to go to them," Nancy tells me. "The guy across the

knows of her. Most pot in

street got diagnosed with muscular dystrophy when he was 30, so I've been taking care of him for over 20 years. He's wheelchair-bound too. We watch out for each other." J-Sho and I move on to

FARLYTIMES

Mint Jules

Bardstown Road,

the hippest part of Louisville. The Lang Brothers run Natural Mystic, a headshop specializing in detailed glass. Their shop Louisville Glass Institute is preparing to host glassworkers from around the world for the annual Glass Art Society (GAS) conference.

Later in the day, it's time for mint juleps across the street at O'Shea's and a visit with the good doctor. Armed with a Ph.D. in botany from the UK and a love of good weed, the doctor's been growing indoors and out since the '70s.

"There are still family patches here and there," he tells us, "but not like it was yesteryear. The outdoor thing just kept getting tougher and tougher. Harvest is hunting season. But instead of hunting, they are *hunting*. You need protection, especially around harvest season—laying trip wire ... you just want to discourage somebody. Some people, around harvest, camp with it—they *sleep* with it.

"This goes on everywhere," the doctor continues, "Some of the guys hike into the national and state parks because it's public land. So they hike in and out, in and out. But there's no specific parts of Kentucky—they grow further south and to the east, where you get into the hills. Plants grow really well there. The soil is really good. We get plenty of sun and rain. We don't have to worry about it <u>like in a lot of other places."</u>

We sample some of the doctor's own Baby Girl, a G-13 hybrid crossed with a couple of his own strains. "It has got a little Jack in it, some G-13," he tells us.

And then it's time for the toast of the town, the Kentucky Derby—13 races, crazy hats, Churchill Downs, bourbon, bourbon, bourbon. We have box seats around the first turn. My pot-leaf-shaped hat brings me luck: I win \$50! A woman in a poodle skirt tells my pals that my "hat looks like the Chronic." The expected rain results in a few good old-fashioned freak-outs in the muddy infield. Number 4 wins out of 20 horses. Pot solidarity runs deep at the Derby. (4/20!)

The smell of fresh marijuana wafts from the stands, but the cops are too busy dealing with underage alcohol poisoning to bother anyone peacefully smoking grass. Then the rain turns to sun and we spend the evening at Jack Frye's, eating baconless potatoes after enjoying a Baby Girl spliff in the parking lot.

Good night, my old Kentucky home. 🖗

Beau stops to smell the buds. Gatewood wants the government out of our gardens.

THE 'LAST FREE MAN IN AMERICA' SPEAKS

Gatewood Galbraith talks pot, politics, and the passing of his hero, Jack Herer. By Natasha Lewin

Gatewood Galbraith has run for Congress, Kentucky commissioner of agriculture, state attorney general and, now, five times for governor. He lost them all, but won more than 10 percent of the vote. He's an ultra-outspoken proponent of civil liberties, personal privacy and the right to grow, smoke and tax marijuana. He cites Jack Herer as huge inspiration. Currently, he's running for governor in the 2011 election with fellow Kentuckian Dea Riley as his running mate. He has already received endorsement by the United Mine Workers of America. We caught up with Gatewood in Lexington, KY.

Tell us about Jack Herer.

He changed my life. Jack was a social and philosophical tsunami; the ripples of his philosophy will reach every shore of every country. He was willing to teach every individual—not only in his own sphere, in language and culture, but in ways that were appealing and inspirational to people. He found a common denominator with everyone: *freedom*.

Jack gave us the factual information; he gave us the tools to be warriors. We had to use the facts in order to stand up to these lawenforcement tyrants. Jack used the information that they presented and told us how to use it as fuel against them. We would not be anywhere near where we are today if it wasn't for Jack Herer. I don't have many heroes— Jack, Willie Nelson, the Chinese man that stood in front of the tanks ... people that stood up in the matter of rights.

How did you get into politics?

In student demonstrations, I was one of the four with bullhorns. In 1971,with three to four thousand people, we shut the University of

Kentucky down. They called in the National Guard. Next to Kent State, Kentucky was the only other school where the National Guard came in with live rounds in the chambers. There were 5,000 guards, and 5,000 students behind me—but turning into Superman won't solve the problem. I don't know what laws were invoked to put them there, so I decided to write, study law. Then I figured if I'm going this far, I'd run for governor.

By 1981, I was pursuing the legalization of marijuana. In 1984, I ran as a Democrat promoting legalization. Everybody laughed, but we had the advantage: There were more marijuana smokers than there were Republicans. I got 14 percent in the primary.

Later, when I tried to run as a Democrat in the '90s, the Democrats froze me out. I ran for Congress as a Democrat in 2000; I ran in 2003 for attorney general as an independent. But really, I ran to change the laws for marijuana. I knew that, at some point, economics would give way to legalization. This transition from black market into legitimate status is worth trillions of dollars. And people don't understand it. Cannabis has been used for hundreds of years. California is going to legalize marijuana this November. Once this money starts coming in, the only question left is whether you're going to be the second state or the 50th to legalize.

It is going to cut the cost of health care by half a billion dollars a year, because a lot of people would rather smoke a joint and lay in bed than be stuck in a hospital with tubes and be zombies. Each state has to understand that sovereignty rights are big here. The right to grow your own or to not grow at all—it should be left up to the individual.

We are going to remove all these people behind bars that are in the prison industry. We are going eliminate the Drug War. We are going to celebrate the individual. We are going to enunciate the principles of America. That's what I am saying, and that is why I will keep running until the laws change. *****

For more information, visit gatewood.com or check out Galbraith's book, The Last Free Man in America: Meets the Synthetic Subversion (Outskirts Press 2004). C BC Northern Lights Presents:

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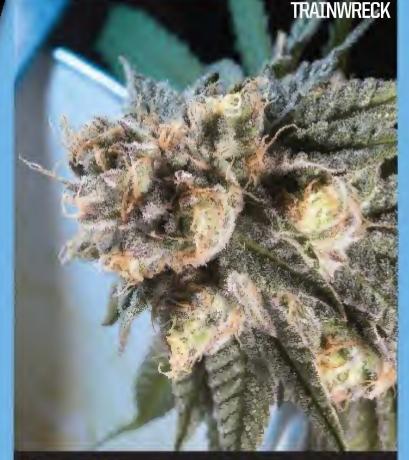
Trans-High Market Quotations (THMQ) reports pot prices by the ounce, strain and location. To submit prices, go to the THMQ link at hightimes.com. CURRENT US PRICE INDEX: **\$383** (last month: \$344; YTD: \$360)

CURRENT KIND INDEX (\$350+ PER OZ): **\$434** (\$405, \$427)

CURRENT MIDS INDEX (\$150-\$349 PER OZ)**: \$286** (\$279, \$279)

CURRENT SCHWAG INDEX (\$1-\$149 PER OZ): \$100 (\$110, \$97)

STATE	СІТҮ	STRAIN	PRICE	
ARIZONA	Tucson	Orange Kush	\$400	
CALIFORNIA	Compton Redding Sacramento San Diego Temecula	OG Bubba Kush Silver Haze x Trainwreck Grape Ape Sour Diesel Hindu Kush Belladonna Clockwork Drange	\$350 \$200 \$275 \$275 \$400 \$400 \$550	
COLORADO	Craig Denver	Pure Power Plant Cheesel Super Lemon Haze	\$400 \$300 \$350	
IOAHO	Boise	Bubblegum Hash Plant	\$300 \$350	
ILLINOIS	Berwyn	Blackberry	\$425	
IOWA	Sioux City	Trainwreck Super Silver Haze	\$375 \$375	
LOUISIANA	New Orleans	Cheese Jack Herer	\$560 \$560	
MAINE	Portland	Silver Haze Jack Herer	\$400 \$400	
MARYLANO	Annapolis	Snow Cap	\$350	
MASSACHUSETTS	Boston	NYC Oiesel	\$400	
MICHIGAN	Bay Harbor Detroit Grand Rapids Harbor Springs	White Widow LA Confidential Sour Diesel Chocolate Trip Chemdog Bubble Hash Blueberry	\$300 \$350 \$500 \$300 \$300 \$800 \$800 \$350	
NEVADA	Reno	Purple Urkel	\$300	
NEW HAMPSHIRE	Manchester	Sour Diesel DG Kush	\$475 \$350	
NEW JERSEY	Mays Landing	Blue Oream Bubblegum Haze	\$450 \$450	
NEW YORK	Rochester	Headband x Sour Diesel White Rhino	\$350 \$320	
NORTH CAROLINA	Greensboro	Cream Kush	\$460	
OKLAHOMA	Tulsa	C-99	\$400	
PENNSYLVANIA	Bethlehem Pittsburgh	Sweet Tooth Blueberry Trainwreck	\$600 \$500 \$390	
SOUTH CAROLINA	Charleston	Strawberry Cough Jack Herer	\$400 \$400	
TENNESSEE	Nashville	Sour Diesel	\$440	
UTAH	Salt Lake City	Mazar	\$300	
INTERNATIONAL (prices in US or Canadian dollars or British pounds)				
ARGENTINA	Buenos Aires	Kong	\$230	
CANADA	Kamloops London Toronto	Bubblegum White Russian OG Kush	C\$200 C\$230 C\$250	
ENGLANO	London	Kong	£240	



MARKET ANALYSIS

Once again Kush took the top spot, narrowly beating out Oiesel and Purps in total submissions. However, while Diesel's average price dropped \$45 from August, Kush's average price shot up \$30 this month, and Purps essentially held steady (-\$10). The top five submitted strains for the month, with average price, were Kush (\$417), Oiesel (\$413), Purps (\$361), Haze (\$363) and Trainwreck (\$329).

Index Watch: All indices finished above both their year-to-date and previous month's average, with the exception of the Schwag Index (+\$10). The US Price and Kind indices experienced the biggest increase from their previous month's average (US Price +\$39, Kind +\$29).

HIGH TIMES wants to know what you're smoking. Submit your strain information, including location and price by the ounce, to thmq@hightimes.com.



Kong - \$230

Buenos Aires, ARGENTINA "It's a true beast-the second crop of Kong is even more lethal than the first! Big, dense calyxes with a very unique flavor and coated in fat resin heads that give you a truly mind-numbing stone."

Silver Haze x Trainwreck - \$200 Redding, CALIFORNIA

"A beautiful plant that grows large yields and loves the outdoor Northern California sun the best. The smoke gives you an energetic euphoria that soars higher and higher. The price reflects the flooded market ... even in dry times!" Bubblegum - C\$200 Kamloops, CANAOA "Awesome. Very sweet-smelling, with the most sugary taste when smoked."

Pure Power Plant - \$400 Craig, COLORAOO "Grown indoors. It has a great smell and very potent high."

Trainwreck - \$390 Pittsburgh, PENNSYLVANIA "Some of the densest and least-stringy Trainwreck I've ever seen-beautiful, crystal-caked nugs with lots of dark red hairs."

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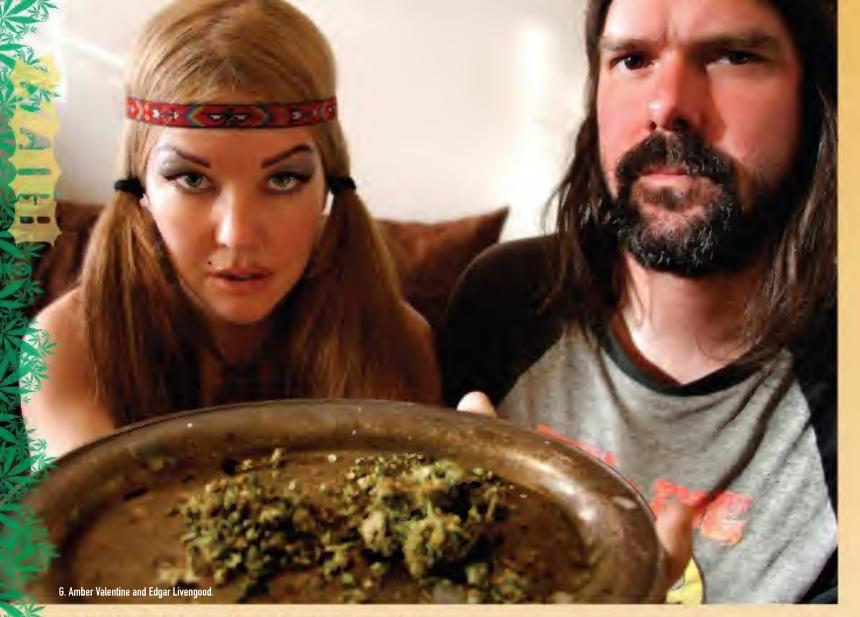
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JUCIFER RISING

Road warriors Jucifer have been blowing minds—and stacks—since 1993. Married couple G. Amber Valentine (guitar, vocals) and G. Edgar Livengood (drums) travel the country in their RV 365 days a year, delivering their trademark bone-crushing stoner garage-metal riffage through a towering wall of 14(!) cabinets. The band just released their fifth full-length album, *Throned in Blood*, on their very own brand-new imprint, Nomadic Fortress, and are also the subject of two forth-coming feature films, one by Derek Cianfrance (who directed Michelle Williams and Ryan Gosling in *Blue Valentine*) and the other by David Hall (director of *Mary-land Deathfest: The Movie*). Before they departed to give Europe a taste of thunder, Valentine spoke with HIGH TIMES. By Polly Watson

Describe the first time you got high. It was [right at the end of] high school. My friend worked at a movie theater. We smoked with his mom—which blew my mind, as my household was much more conservative—and then got in his car for the short drive to the theater. I started feeling good about halfway there. I remember looking at myself in the car's side mirror, sticking my head out the window and seeing huge eyes and a pasted-on grin. I said to myself, "I have glass rabbit eyes!" I couldn't stop laughing. My friend had keys to the theater, and we went in-it was closed—and had a private screening of whatever was out at the time. I

don't even remember the movie just the sensation of being high. We both passed out in our seats and woke up to a quiet theater and stiff necks.

How do you deal with having weed on tour?

We stopped touring with weed years and years ago. We're obviously a band, and we look like we'd have drugs, so we always get profiled. But the kindness of strangers ensures that we have access to it.

Do you find that some states are more forgiving than others when it comes to weed? Definitely. States like California, where medical marijuana is legal, have really loosened up on nonmedical use. It's shocking [to me] to see how nonchalant people are, having grown up in the Bible Belt, where it's still aggressively prosecuted.

As the daughter of a mom who has lupus and fibromyalgia, I get really upset about the states still forbidding medical use. Doctors are putting my mom on extremely dangerous, strongly addictive, nervoussystem-depressive synthetic narcotics for pain, and she can't opt for something natural and more lowkey? It's awful. There are so many people who would benefit from medical marijuana—not to mention the ludicrous concept that alcohol and cigarettes are okay, but pot is some kind of "gateway drug." Legalize it!

Let's talk about *Throned*. The record is about the folly of war. Your last release, *L'Autrichienne* (Relapse 2008), was also a concept album. What inspired you to start making albums focused on a central idea? We didn't let people in on it back in the day, but all of our records have been concept records. After years of people assuming the songs were autobiographical, or random, we figured out we needed to start making the concepts known—not because we felt misunderstood, but because the songs have more emotional impact when the listener knows what they're about. I think it really makes a difference to know the basic topic, even if you don't care about lyrics. [Adhering to a concept is] also a great way to accommodate the kind of mood and sound shifts we like to put in an album sequence.

Live shows form the backbone of your considerable reputation. Do you feel that *Throned in Blood* captures the energy that Jucifer wields live?

We're happy with the album, [but] I think the songs will translate 100 percent more intense in person. It'd be a bummer if they didn't. We hope to always have something to offer in our shows that transcends what's on the album, because that's what we believe a live show should be. We want to give people a great record for their money—and when they've already bought the record and pay for the show, they deserve a whole extra return for that extra investment. ¥

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Another technique for upgrading the aroma, taste and value of your crop is to feed vitamins to your plants. For example, Vitamin C stimulates photosynthesis and cell replication while also protecting your plants from negative effects of intense light and heat. To go along with Vitamin C, studies show that feeding your plants B vitamins provides many flower-boosting benefits while also protecting crops from stress.

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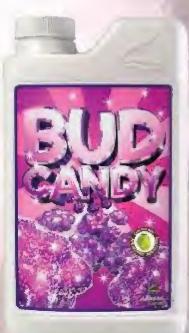
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'First and foremost, it's still psychedelic music, and to me *psychedelic* doesn't mean "blotter art," it means "mind-expand<u>ing.""</u>

ANTON AT THE GATES OF DAWN

Brian Jonestown Massacre break on through to the other side of psychedelia. By John Payne

Like his band, the infamous Brian Jonestown Massacre, the even more infamous Anton Newcombe is one deeply misunderstood phenomenon something that BJM's new album, *Who Killed Sgt. Pepper*?, will only push to more troubling extremes. Yet the crankily opinionated (in fact, wickedly witty) Newcombe—best known for his role in the documentary *Dig!*, which focused on the Brian Jonestown Massacre's falling-out with the Dandy Warhols—has good reasons for proclaiming that he's got the most important band on the planet.

Who Killed Sgt. Pepper? is a thoroughly mind-melting mélange of arcane world music and semi-blatant grabbings from the cheesy pop rock/R&B/funk of the past, all of it juxtaposed with the trademark gnarly punk/garage slams that the band have been mastering since their birth in 1994. But that's a fairly superficial way of describing such a mysteriously moving sound, for all of this pop detritus has been frappé'd in the Farberware of Newcombe's complex mind, and what's strewing out is an extraordinarily evocative and ambiguously gorgeous mess.

That "ambiguous" part is important, because most rock bands just don't deal in the in-between nebularities of sound and word, generally preferring to conk you on the head with their populist anthems and fist-pumping calls for *action!*. But Newcombe's done with all that—now, he says, without a trace of pretension, is the time for making art.

"First and foremost," says Newcombe, "it's still psychedelic music, and to me *psychedelic* doesn't mean 'blotter art,' it means 'mind-expanding.' So there's a lot going on in my sort of silliness when I was setting out to do this. The first goal was trying to make movie music, like Giorgio Moroder back in *Midnight Express*, but something more shamanistic and dark or something. And really weird—I wanted to see how quickly I could scare the shit out of myself."

Who Killed Sgt. Pepper? is a beautifully baffling thing that sounds different every time you listen to it. Newcombe was curious about what he could do with the mythology of the Beatles' Sgt. Pepper, which he calls "a suffocating sort of iconoclasm." While you might hear a slight referential thing here and there— "Ring My Bell," "Rock With You" and "I Feel Love" wisp like ghosts through these tracks—for the most part, these references are turned completely inside-out. The only place where the musical cues sound kinda obvious is in "This Is the One Thing We Did Not Want to Have Happen," but here it's Joy Division getting eviscerated. And that, Newcombe points out, was intentional.

"Sometimes I create questions for people," he says. "I have a beef with bands like Interpol or the Strokes: These people approach their art—or their commercialism—going, 'Wow, Wire! *Pink Flag*! It's a great record—I think I'll *live* it! I'm gonna *be* it!' And then you've got the media pushing that, to where you've got Interpol just whizzing as Joy Division Lite. So my joke was, 'Well, who's Joy Division? I'll rip it off Interpol.' I set up a booby trap. Today, everybody's best ideas become everybody else's ideas."

These days, the Brian Jonestown Massacre is a communal circle of likeminded weirdos that split their home somewhere between Iceland and Berlin, with the latter being where Newcombe got clean of his old vices and basically started afresh. It's a better life over there, apparently.

"It just seemed like a good time for me to sort of make the jump," he says. "Politically and culturally, the writing is on the wall. In Europe, you don't hear these people shouting each other down about socialism, whatever they're saying about Obama and all that crap. It's like you *know* a certain segment of the population is gonna stand up for human rights, education and all that stuff, and then you're gonna have public debate about militarism et cetera."

However, Newcombe does get homesick for California from time to time ... sort of.

"But that rat race?" he continues. "I just can't see it. There's no reason for it. It's like a series of bubbles: You've got your little bubble house, your bubble invitation to go to your bubble party to be with your bubble friends, and you go to this club or this restaurant and you stay in your car and you go to your job and your gym and your golf course, your street, your area of the beach ... so that's a life worth living? It's a joke."

Whereas, in olden times, Newcombe might have dealt with his varied frustrations by getting well and truly slammed, he now lives by choice as a clean machine tapping the magic serums of his own inspired head. But then, he also thinks that whether he's "clean" or not is his own damn business—as it should be for anyone who might prefer to do otherwise, such as peaceably puffing their pot pipe, for example.

"The government has no business dealing in that," he almost snarls, before adding with a laugh: "In fact, their business is law enforcement—and their business is getting that stuff on the side. It's just nuts that someone could get busted for dealing weed and not get busted for stealing banks!" *

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As the Liars pull out their medical-marijuana cards, Aaron observes that there are now more marijuana dispensaries than McDonald's inside LA's expansive borders. The Liars speak the truth about marijuana. From left to right, Angus Andrew, Julian Gross and Aaron Hemphill.

LA VIDA MOTA

A perilous LA weed dispensary inspires the Liars' Sisterworld. By John Fortunato

Lanky Filipino-born Australian globetrotter Angus Andrew came to California after attending Vassar College in Poughkeepsie, NY, for a semester. While in Los Angeles, he met fellow prospective medical-marijuana cardholders Aaron Hemphill and Julian Gross and formed the Liars. In 2001, Angus and Aaron relocated to Brooklyn, and these post-punk experimentalists dropped their bombastic dance-punk debut, They Threw Us All in a Trench and Stuck a Monument On Top. Soon after, they crossed the Hudson River to dwell in New Jersey for their witchcraft-informed noise-rock follow-up, They Were Wrong, So We Drowned. From there, and with Julian in tow, they did a two-year stint in Berlin, culminating in their '06 conceptual labyrinth, Drum's Not Dead, followed by a neo-psychedelic '08 full-length simply titled Liars. (Stony fans should take note that each Liars album contains at least one ethereal track where the ambience comes from the sound of smoke going through a chamber.)

Now back in LA—where Angus just forsook his loft apartment within a perilous marijuana dispensary—the Liars return with the more songoriented *Sisterworld*, a tragic epilogue exposing the seedier underside of his current adopted hometown.

"Aaron lives in Venice, and Julian's at the opposing north end in Highland Park. I was in Le Brea in between," Angus says. "I found a weed dispensary with an abandoned studio above. That seemed thumbs-up, but it was a beacon for crime. They have a security guy to show ID. I was close with him, buying a good amount of weed." However, a few robbers murdered the security guard, and this experience, along with the way the cops dealt with the situation, tormented Angus.

"The cops cut off his clothes. He was naked in the street bleeding," Angus says. "When you're in a position as a writer, you're both inspired by the situation and disgusted by your reaction—being excited by seeing this horrible killing. But I had a lot of those scenarios going on around me, which was perfect for what I was looking for, but nothing I could hack for long."

The album's raging industrial-metal mantra, "Scarecrows on a Killer Slant," captures all the murderous, gun-wielding pandemonium that Angus observed that day. However, while he was dismayed by LA's myriad lawbreakers, Aaron and Julian seemed to take it more in stride.

Angus reflects: "Their perspective is different—it's a little more romantic. I felt it was 'shock and awe.' The experiences we had were the types of things that'd make you want to find some sister world that's completely undefined either physically or mentally, in terms of a place to reestablish yourself away from the constant barrage of influences we always feel—particularly in America, especially Los Angeles. Advertising is constantly coming at you. How do you get away from that to get a sense of what's important?"

Back at the dispensary, Angus once witnessed, on a security camera, an individual trying to use the "jaws of life" to break into the place. And if all that wasn't crazy enough, he soon had to cope with another ordeal. "Eventually, these guys sledge-hammered through the wall to my studio one night. It was a good experience to get the visceral taste of the landscape," he recalls. "What interests me is the *fantasy* of LA. It's extremely different. *Sisterworld* explored areas that aren't spoken about: 90 percent of what's shot for movies in LA is done in about two percent of the city. Even geographically, the idea of LA is difficult to grasp. Downtown has many homeless shelters in this big sprawl. How do you achieve an identity in a place that's so loose and fluid? Whereas, in New York, it's not so much fantasy—it's the opposite."

Aaron chimes in: "There are very shady and badly operated dispensaries. There's one in Venice that has a locked-door holding area, and there's another one that looks like a boutique where nothing's written on the wall. It's all big jars—they take out tweezers and describe the pot. Some are old X-rated theaters. One looks like a fancy silk boutique where things are wrapped in an organic screen displayed like an ice-cream parlor."

As the Liars pull out their medical-marijuana cards, Aaron observes that there are now more marijuana dispensaries than McDonald's inside LA's expansive borders. Weirdly, Julian's prescribing doctor posed in a bikini for her business card.

"She was a real doctor," Julian affirms, "but she makes more money writing weed prescriptions than working 20-hour days five times a week for 30 grand. You can either pursue medicine at a hospital or sell marijuana."

Though the Liars maintain that the marijuana quality at the dispensaries is fine, Angus has a few doubts concerning legalization. "The *idea* of legalization, I'm happy about," he elucidates. "But it's not easy to pull off, realistically or logistically." *



ACCRISITION OF LIVE CANNASTS SEEDS IS ILLEGAL IN THE UNITED STATES 1 PAYABLE IN US DOLLARS PROM ANYWHERE IN THE WORLD

WHITE LINE FEVER

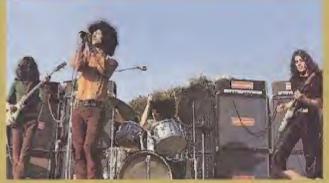
MICK FARREN

Speed-Speed-Speedfreak (Feral House) ₩ ₩ ₩

In the '60s, the warning "SPEED KILLS!" could be found everywhere from bathroom walls to public-service radio spots by the likes of Frank Zappa. While speed can indeed kill, the claim has also been made about cannabis, so its credibility has always been an issue.

Mick Farren is one of the leading lights of underground culture—the au thor of 40 books, the frontman for

proto-punk bank the Deviants, and an all-around shit-stirring troublemaker. In his new book, subtitled *A Fast History of Amphetamine*, Farren doesn't whitewash speed's gnarly effects, but he does tell the truth so that people can make informed decisions separate from the influence of Drug War propaganda. A former devotee of crank himself, Farren knows whereof he speaks, chronicling the rise of the sleep-robbing chemical from its initial synthesis as amphetamine in 1887. As with other drugs, its use was encouraged—even mandated—by those in power when it suited their purposes: Militaries from the Nazi Wehrmacht in World War II to the US forces in Iraq have popped uppers when



Lights of underground culture—the au- The Deviants (L to R) Sandy Sanderson, Mick Farren, Russell Hunter & Paul Rudolph

needed or ordered to (in the latter case, at the same time that George W. Bush was proclaiming National Methamphetamine Awareness Day. Such is the schizophrenic nature of drug policy).

The author examines disparate personalities from Adolf Hitler to Elvis, Hunter Thompson to JFK, Hank Williams to Judy Garland—all of them speed freaks. Despite speed's debilitating burnout, people can get a lot done while using it, and, as Farren points out, it was the perfect drug for '50s America and its mindless work ethic. That it also fueled Jack Kerouac—and thereby kicked off the Beat movement and influenced every counterculture since then—is just one of

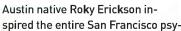
life's little ironies. And from the Hells Angels to the Mexican mafia, the demand for illegal speed has been a boon to black markets.

The book is cleverly formatted in the shape of an amphetamine capsule and is chock-full of Farrenisms (referring to Hitler at his most tweaked, Farren describes him as "high as a swastika-decorated kite"). The author and his publisher, Feral House (legendary for their controversial tomes), have provided a sometimes fun, sometimes scary, always fascinating look at one of the most popular items in the recreational pharmacopoeia. Speed may indeed kill, but its history teaches us a lot about human nature.—Michael Simmons

ROKY ERICKSON

Love Cast Out All Evil (Anti)





chedelic scene and many lo-fi garage-rock acts when his early group, the 13th Floor Elevators, scored a national hit with their howling '66 smash, "You're Gonna Miss Me." Arrested for possession of one measly joint in 1969, Erickson has spent the rest of his life reeling from the outcome. After pleading insanity for marijuana possession, he was committed to Rusk Hospital for the Criminally Insane and received shock treatment in the '70s. Suffering from mental illness and convinced he was an alien, Erickson became a toothless, hoarding recluse, yet still managed to cut such cult classics as "I Walk With a Zombie" and "Don't Shake Me Lucifer" despite his disturbingly misanthropic behavior.

Recorded with folk-edged indie rockers Okkervil River, Love Cast Out All Evil serves as a resounding testament to Erickson's curious compositional ability. A solemn autumnal reclamation, its deep-rooted, soulbaring religiosity stands in direct contrast to his earlier demonic bedevilment. The sentimental orchestral madrigal "Be and Bring Me Home," the balladic lullaby "Forever," and forlorn plaint "Please Judge" all expose a genuine confessional melancholia previously unseen in Erickson's work. On the other hand, the hard-driving, piano-pounding mantra "John Lawman" and the beat-heavy country-punk rampage "Bring Back the Past" have the same full-blown intensity as the schizoid guru's finest garage-psych missives. Remarkably, this engaging set contains his most demurely earnest, easily approachable and consistently rewarding batch of tunes. Fans who crave more are also directed to Erickson's career-spanning compilation, / Have Always Been Here Before.—John Fortunato

KATIE ARNOLDI Point Dume (The Overlook Press)



In her latest novel, *Point Dume*, Katie Arnoldi deftly offers a vivid, unflinching and entertaining look into the lives of various Southern California denizens.

Easily the two most interesting characters in the book have lives that revolve around marijuana. The first is Pablo, a rough-around-theedges young man who lives in a camper and makes a living by skimming and selling buds off the plants growing in the mountains he calls home. The voice that begins the book, Pablo is an easygoing, likeable slacker, prone to discussing the differing types of camouflage clothing he wears while riding his bike around the back trails searching out gardens. The other is Felix, an impoverished Mexican who agrees to be smuggled across the border into the US to watch over one of those cartel plantations for what is, to him, an unheard-of sum of cash. Unused to the solitude and loneliness of hiding out in the woods for an entire planting season, Felix goes a bit bonkers. He begins to build an entire menagerie of animals from sticks, at first to pass the time, then gradually treating the animals as though they're not just alive, but family. Felix goes so far as to supply both sides of their conversations—some of which Pablo overhears as he's on his rounds, inspecting the fields and gardens he plans to raid at the end of the season.

A somewhat sad twist comes at the end, but otherwise, this book is funny and heartwarming, and many of the situations will be familiar to readers of HIGH TIMES.—**Preston Peet**



Gold: Before Woodstock, Beyond Reality Directed by Bill Desloge and Bob Levis (MVD Entertainment Group)



In 1968, "organizers" (not "directors") Bill Desloge and Bob Levis shot this hellzapoppin' satirical hippie western starring Garry Goodrow as Captain Jinks, a cop determined to bust a commune for lewdness, and Del Close as Hawk, an inept revolutionary who comes to the aid of the communards. Goodrow and Close are underground-comedy legends, members of The Committee, the San Francisco acting troupe known for its brilliant antiestablishment humor. (Close was also a veteran of Chicago's improvisational theater Second City and a mentor to John Belushi and Bill Murray, among many others.)

There's topical social commentary here (f'rinstance, Jinks's murder of a longhair is intercut with images of the Kennedy and King assassinations), as well as rampant carefree nudity from both sexes. And no freak flick would be complete without music: We see Ramblin' Jack Elliott surrounded by a gaggle of hippie chicks who have neglected to put their clothes on (Elliott looks delighted), and we hear the MC5 on the soundtrack (their late-period manager, pirate-radio king Ronan O'Rahilly, executive-produced). With the exception of a vague reference to a gold rush at the beginning of the film, the most obvious gold here is the kind from Acapulco that the cast smokes throughout (the crew audibly giggles offcamera). It's hardly Fellini, or even a classic period piece like, say, Robert Downey Sr.'s Greaser Palace, but Gold does accurately capture the authentic sense of tribe that any veteran of that era can attest to.-Michael Simmons

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to us. Incidentally, why are those Canadians on the lawn?" Reagan had mistaken the five-pointed hemp leaf for the maple leaf featured on the Canadian flag.

ager explained. "Those are the marijuana protesters, and they live down there 24 hours a day."

few days, and I'll see what I can do for you."

A week later, after only two days in power, the Reagan administration renewed a World War II-era anti-sabotage act, which had originally been passed in 1943 as a wartime measure to prohibit anyone, such as saboteurs, from being on federal property after regular business hours. As a result, Jack and five others were arrested for registering voters on federal property after dark. But Jack refused to accept a year of unsupervised probation and pay the maximum fine of \$5 (the original amount specified in the law, which had been reenacted so hastily that federal authorities

The legacy of Jack Herer is tinged with moments of humor and triumph. **By Paul Krassner**

MEMORIES OF JACK

In 1973, "Captain" Ed Adair, Jack's partner in the marketing of countercultural items, insisted that they take a joint oath: "We swear by our life, and our love for it, that we will work every day of our lives, all day, all night, to legalize pot—until we're dead, or it's legal, or we can quit when we've turned 84."

BRAIN DAMAGE CONTRO

In 1980, they began a series of protests on the front lawn of the Los Angeles Federal Building that

It was five days before his inauguration, and he needed a haircut from his favorite barber. With his entourage of Secret Service agents, Reagan visited the Federal Building. "You're doing a fine job," he told the manager, "and I want you to know that you can bring any of your problems

"They're not Canadians," the building man-

"Well," said Reagan, "I'll be on the job in a

lack works his booth at the Seattle Hempfest.

'We swear by our life, and our love for it, that we will work every day of our lives, all day, all night, to legalize pot.'

neglected to adjust it for inflation). He was sentenced to 14 days in jail.

"It was the best thing that ever happened to me," Jack once told me. "I had never been given the opportunity to write so clearly and without interruption."

In his dreary cell, Jack composed an outline for The Emperor Wears No Clothes: The Secret History of Hemp and the Conspiracy Against Marijuana. Selfpublished and without major distributors, wholesalers, advertising or reviews, the book became an underground classic—never officially recognized as a bestseller, though it has sold over 700,000 copies.

My favorite anecdote about Jack comes from another outspoken visionary, Gatewood Galbraith, who'll be running

for governor of Kentucky next year.

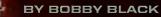
When Bill Bennett was named the Drug Czar," Galbraith recalls, "he held a news conference at the National Press Club. So Jack and I rented the room next to them, and he gave an anti-Drug Czar talk. Jack wore a three-piece pinstripe suit—the first time he had a suit on in 30 years. He looked like a heavyweight Phineas T. Freak Brother, and he was so funny. He said, 'Gatewood, this is a national news conference, and I have a very serious question.' I said, 'What's that, Jack?' And he said, 'Should I take three hits of acid, or six?' So I said, 'Suit yourself.' He said, 'Okay, six.' He took six, and he went up there and gave a brilliant performance."

In 1994, at the Seventh Annual Cannabis Cup, a new strain of marijuana, four years in development, was christened "Jack Herer." Jack mused: "Long after I've died, people will be smoking Jack Herer." It may not have been that particular brand, but the mourners at his funeral were sure smoking something. 🖗

The full story behind Krassner losing his mind is included in the expanded edition of his autobiography, Confessions of a Raving, Unconfined Nut: Misadventures in the Counterculture, available at paulkrassner.com.



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The Midwest has long been a hotbed of successful hip-hop artists, but Shrub's eclectic fusion of rap, reggae and rock brings a whole new flavor to the scene.

Shrub's debut EP, *Señorita*, is quickly setting this Columbus, OH-based band apart from the pack. From the ganja-induced club anthem "We Wanna Smoke," to the dancehall banger "Come and Get It," to the much more emotional "Cherries," Shrub has tapped into a unique and raw sound all their own.

The EP features guest appearances by DJ Rasta Root (current DJ for Phife Dawg of A Tribe Called Quest and Chip Fu of the Fu-Schnickens), Lyrical (artist/producer for Myrical Records) and Jenny Flory (singer/songwriter from the Wonder Twin Powers). Additionally, Opie Ortiz (from the Long Beach Dub Allstars) created the sick album artwork.

Most recently, Shrub has been working with award-winning dub-reggae producer Dubmatix on a tripped-out, three-song remix companion album to *Señorita*. Both *Señorita* and the Dubmatix remixes are available through iTunes, Amazon.com and CDBaby.com.

For more information on Shrub, including tour dates and audio samples, check out hightimes.com/shrub.



do my work high

Jersey rockers Cycle of Pain take home the Doobie for Pot Song of the Year.

While in the midst of putting together my "Coffeeshop Confidential" video last summer, I got an email from the good folks over at Adrenaline PR about some new metal band they were promoting called Cycle of Paina side project of Black Label Society bassist J.D. DeServios. Each song on their self-titled debut (Reform Records) featured a different guest performer, such as Korn's Ray Luzier, Fear Factory's Burton C. Bell,

P-Funk's Clip Payne and many others. There was one particular track, however, that the publicity people were most eager to bring to my attention—a cannabinoidal collaboration with Black Label (and former Ozzy) guitarist Zakk Wylde and Cypress Hill's Sen Dog entitled "Do My Work High."

With lyrics like "Break time come, I roll up another / Do it big like I'm on the fuckin' HIGH TIMES cover," this was definitely a song I could identify with. In fact, I liked it so much that I decided not only to use it in my potcast, but also to host a listening party for the band. So a few weeks later, the group and I met up at Rye Bar in Bayonne, NJ, where we played their album for a group of fans, then blazed a few bowls around the corner before sitting down for a live interview.

"The first time I got high, I was like nine years old," DeServios confessed. "We went to my brother's house, and I stole a big roach from his ashtray. It was mostly paper, but I got three hits from it and held it in really good, and I got fuckin' wasted. I remember feeling like I was in a movie ... we were running through the woods, and I felt like I was in *Starsky & Hutch* and shit."

When asked what activities he most enjoys with weed, DeServios made it pretty clear that he's an all-of-the-above kind of guy. "I was in a cover band once, and one day I was smoking, and one of the guys in the band was like, 'Dude, I didn't know you got high.' And I said, 'Dude, I've been high ever since you met me!"

"Speaking of which," I asked, "tell us the inspiration behind the song 'Do My Work High."

"Greg [Locascio, vocals] got fired from his job for doing his work high!" DeServios laughed. "He was a cab driver, and he was on a break around the corner smoking in the cab, and somebody called a cop on him, and they came and busted him for doing his work high!"

Locascio picked it up from there: "So I was out of work, I was home a lot, and I just



Cycle of Pain bassist J.D. DeServios and singer Greg Locascio.

DeServios and er Greg Locascio.

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started jamming on this riff. The lyrics were pretty much true to where I was at during that time. I was stressing out about a lot of things, and herb is always a good solution for that."

When Locascio played the song for J.D., he loved it immediately.

"He said, 'Man, this would be so perfect if we could get B-Real or Sen

> Dog to do a little rap on this," Locascio continued, "because it really captures that Cypress feel."" Luckily, DeServios was in a position to make that happen. "Back in 2006, I

was in LA recording with Black Label, and Sen Dog happened to

be across the hall from us recording with his rock band SX-10," he explains. "Apparently, Slash was supposed to come in and do a guitar solo on one of his tunes, but he never showed up. So I said, 'Dude—Zakk's right across the hall, man ... he'll blast a solo for you if you want!' Zakk came and did the solo, and it was totally awesome. After that, Sen said to me, 'If you ever need a favor, you got it.' So one night when we were hanging out at the Rainbow, I asked him if he'd rap on a tune for me, and he said, 'No problem.' Sen is a beautiful guy—he was very accommodating. And obviously Zakk is my brother, so he was good enough to jam a solo on it for us. That's how the whole tune came together, and it ended up being perfect."

Perfect, indeed—with its catchy chorus, relatable rhymes, and synergistic synthesis of rap and metal, "Do My Work High" is destined to become one of the all-time great stoner anthems—one that we were proud to announce as our Pot Song of the Year at the Doobie Awards this March (see story on next page).

"This is such an honor," J.D. gushed as he admired their tokable new trophy, "because this song isn't just some shit we made up—we really fuckin' live it!"

You and me both, brother.

For a free download of "Do My Work High" just scan here! Check out more from Cycle of Pain on MySpace or at cycleofpain.net.



Get the free mobile app at http://gettag.mobi



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THE 2010 DDDDBBE CELEBRATING THE

Once again this spring, HIGH TIMES headed down to Austin, TX, to throw our Eighth Annual Doobie Awards party at the SXSW music conference. From high noon till sundown on Sunday, March 21, we blazed down the world-famous Emo's club with seven bands, six-foot vapor bags, and six hours of sunshine and free Heineken. This year's performers were blues babe Amyjo Savannah, Cali desert rockers House of Broken Promises, Austin's own Amplified Heat and Dixiewitch, Boston power-pop group Prospect Hill, Maryland reggae riffsters Lionize, and Sin City hemp-hop stars Los Marijuanos. The presenters included HT's own managing editor Natasha Lewin and Temple Dragon Jet Baker, P-Funker Kim Manning, Kopbusters Barry and



Ponyboy of Los Marijuanos hits the Zephyr lon vapor bag.

Candi Cooper, as well as local activists from Austin NORML, Texas Cannabis Crusade and Outgrow Big Bro.

In addition to awarding 10 of our fabulous, fully functional glass trophies (created by the diabolical Dr. Bobalicious from Las Vegas), we also announced the results of our Third Annual Cowboy Cup (see the sidebar next page) and the *Hemp Hemp Hooray!* soundtrack contest. This online music competition was organized by Melissa Balin, director of the documentary film *Jack Herer's The Emperor Wears No Clothes*, who was on hand to represent. The lucky winners (Benedict Arnold & The Traitors, Northern Lights, Superbitch, Ben Scales and Roland A. Duby) will now have their songs appear alongside Savannah, Los Marijuanos and DJ Dre Ghost on the CD of music from and inspired by the film. CONTINUED ON NEXT PAGE



<image>



The 2010 Doobie Award trophies, created by Las

Hemp Hemp Hooray! soundtrack artists Los Marijuanos and Amyjo Savannah, and producer Melissa Balin.

2010 DOOBIE AWARD WINNERS

BEST JAM BAND ARTIST

BEST REGGAE/SDUL ARTIST

BEST HIP-HOP ARTIST

BEST METAL ARTIST

BEST ALTERNATIVE RDCK ARTIST ALICE IN CHAINS

BEST STONER ROCK ARTIST HOUSE OF BROKEN PROMISES

BEST NEW/UNDERGROUND ARTIST PROSPECT HILL

BEST LDCAL ARTIST

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DOBIE AWARDS

A huge, Texas-sized thank you to the staff of Emo's and all of our sponsors: Zephyr Vaporizers (for keeping their long bag filled all day), 420 Science (for making the custom stash jars), Bambú (for supplying a case of rolling papers and cool merch), 420 Exchange (for making the official Doobies T-shirts), Apothecary Genetics (for flying in Los Marijuanos), and Northwest Holistics (for supplying the ... well, let's just call it good cheer). See y'all next year!

Order your official 2010 Doobies stash jar at 420science.com and T-shirt at myspace.com/getyour420. For a list of this year's nominees, photos , videos and more, go to hightimes.com/tags/doobies and myspace.com/htdoobieawards.

Sponsors 420 Exchange wearing the shirts they made for the event.



30 00

vely ladie:



Austin actor and activist Jet Baker.

HT photographed Chris "Pot Star" Eudaley.

Each year before the Doobies, HIGH TIMES hosts the Cowboy Cup—an exclusive VIP tasting party where we judge the Lone Star State's best weed. Hosted by Jet Baker and Vegas Price, this year's competition included six strains, which were coded using cowboy-boot stickers and judged on the blind. As always, our panel consisted of some of the area's top pot growers and activists, as well as some close friends and special guests. After several hours of delirious deliberation, the votes were tallied and decoded. And the winners were ... in third place, N9M1 (aka Fierce Purple Boots); in second place, Southern Sweet (Two Boot Saloon);

and in first place, Dank #1 (Arizona Boot). Thanks to all who voted!



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Got the munchies? Luckily. Stony's pizza is parked outside!

Vegas Price (right) and friend Adrian enjoy some tre

House of Broken Promises guitarist Arthur Seay

unleashes the fury.

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"Why is my plant turning yellow? ... What are those spots on the leaves? ... Isn't it too early to be seeing crystals? ... Are those the same flies that are in our kitchen?! ... Is that a spider web on top of Mount Cola!?"

If these questions arise in your growroom, then keep reading, as this is where preventionand, if need be, eradication-begins in our second installment of "Indoor Organic Pest Control."



What Are You Smoking?

Does your herb unexpectedly pop when you smoke it? In the absence of seeds, that popping sound is likely the dead carcass of a spider mite exploding. Mite fireworks are harmless, albeit very unappetizing. The real question, however, is this: What chemicals did this grower use to eradicate—or even just contain—this pest problem? And is it okay to smoke those chemicals? (Answer to that last one: Definitely not!)

Cannabis growers have been locked in a chemical war with spider mites and other pests for many years. Some commercial non-cannabis grows using toxic knockout pesticides like Avid also tend to rotate between that and other synthetic miticides like Floramite in order to reduce the likelihood of the pests developing resistance. Resistance, or tolerance, to chemical pesticides can occur because they are so heavily used in the treatment of pest problems.

In the absence of rotation treatment, mites (especially on the West Coast) have developed some resistance to the widespread casual use of Avid on cannabis in the '90s. It's not uncommon to hear that the Avid doses necessary for the containment of mites on cannabis increase on a yearly basis. If the application of Avid by cannabis growers continues without chemical rotation, it could eventually stop working altogether.

And it's not that the spider mite is special. It's merely one small symptom of a larger pattern that manages to escape most newspaper headlines: Over 500 species of pests have thus far developed resistance to pesticides.

We know that the repeated application of the same pesticide leads to the development of resistance in insects. If pesticide rotation is generally more effective, then it would seem that a combination of many low-toxicity pesticides could be, over the long term, the best pest-control strategy. But before you start mixing up some sort of toxic brew in your kitchen that might harm you or your plants, let's take a look first at what nature has to offer us.



The Neem Revolution

In our prior pest-control discussion, we explained that some plants possess special "exudates" that not only seal up plant wounds, but also possess pest-control properties.

Neem oil and its more extracted form, Azatrol, are examples of such natural tree exudates, and they exhibit such minimal toxicity for mammals that they are even used as toothpaste ingredients in India. Some people eat neem leaves to cleanse the blood, stimulate the liver and boost the immune system. But to the same extent that neem appears not to harm humans, it can be devastating to bug populations. Neem can prevent, contain and even eradicate most plant-munching insects like spider mites, thrips and fungus gnats. But it is not an instant knockdown, and there are disagreements among biologists as to the precise mechanism by which it works.

What we know for certain, by observations of insects that have ingested neem, is that the neem causes them to "forget" to lay eggs, eat and mate. (Some insects forget that they can fly!) If eggs are nevertheless produced, they may not hatch. And if they do, the larvae's molting process can be disrupted. Furthermore, these effects manifest themselves at incredibly low concentrations (in the parts-per-million range). Some biologists claim that the neem tree protects itself from munching insects with fake insect hormones—rather than actually poisoning the bugs, the tree throws noise into their biological programming.

Aside from the low doses necessary, the fundamental feature that sets neem apart from more traditional pesticides is that this wide variety of behavioral effects appears to derive from a multitude of active chemicals. Scientists have identified over 150 active substances in neem. With so many chemicals involved, developing resistance in insects seems to be comparable to the difficulty that humans have achieving "tolerance" to marijuana.

It has also been observed that grasshoppers limited to a neem-only leaf diet prefer to starve to death rather than eat the leaf—suggesting that neem treatment should occur even in the absence of any obvious pest damage to plants. This is what's referred to as a "preventative" pest-control program. For many pest problems, eradication becomes very difficult once the symptoms are observed on the plants. Hence, prevention is often the only sure way of growing pest-free.

Does Your Growroom Have an STD?

Indoor and outdoor growers face different types of pest threats. For instance, the chances that slugs or caterpillars will attack your indoor garden are virtually nonexistent. But, by imposing these artificial boundaries that reduce the threat of slugs and caterpillars to zero, your growroom's walls and filtered ports also eliminate the natural balance of the outdoor ecosystem that keeps spider mites and thrips in check.

The organic pest-control philosophy suggests that we embrace, as much as possible, nature's own methodologies for balancing the ecosystem by selectively introducing natural predators and natural plant extracts into our artificial grow environment. To avoid confusion, we're going to focus here exclusively on an *indoor* organic pest-control program, as some of the chemicals we're discussing can actually harm beneficial *outdoor* insects (for example, bees).

Indoor growers will most commonly contend with powdery mildew and spider mites. However, thrips, fungus gnats and, on occasion, botrytis are not unheard of indoors. Except for botrytis, these are basically growroom "STDs" (strain-transferred diseases): They typically transfer from one grower to another on clones—and, unfortunately, growers will oftentimes fail to disclose the presence of these pests in attempt to seal the deal on a clone transaction. For certain, the passing of growroom STDs has tainted many grow relationships. But it doesn't have to be that way. There is a cure.



Introduction to the Enemy: Thrips

Thrips are winged insects that are small enough to fit through the eye of a needle (around 1mm across). Identifying a thrip infestation during the vegetative cycle is easiest because thrips feed on the tops of leaves and the internodes along the main stem of the marijuana plant during this stage, leaving a distinct iridescent squiggle pattern in the wake of their dinner.

Even though thrips may appear not to cause heavy damage to cannabis plants, they will feed upon your buds during the flowering stage. The bud will actually become a little "thrips house," protecting them from direct contact with pesticides. It's also worth noting that some experienced growers have noticed that powdery mildew may coincide with the arrival of thrips. This may not be a complete coincidence, as it's already been established within agricultural circles that thrips can spread plant viruses. In fact, these bugs are sufficiently dangerous to crop yields that they are listed as a potential anti-crop weapon by the Biological and Toxin Weapons Convention!

Spider Mites: The King of Pests

Spider mites, on the other hand, leave their dreaded yellow-spotted calling card on leaves. They're about as difficult to see as thrips: Growers tend to notice their damage before they see the mites or mite eggs. Given sufficient numbers, mites will spin tiny web highways that appear to facilitate their transportation—and that strike fear in every grower's heart.

Given their preferred hot, dry environment, spider mites are amazingly reproductive: Just one female can reproduce one million mites in less than a month! It is this incredible rate of reproduction that lends the spider mite its unique ability to quickly develop resistance to most pesticides.

The spider-mite life cycle can completely repeat (from egg to egg) in as little as nine days, and the large mite eggs are impressively resistant to most chemical treatments. This means that nearly all treatment programs will involve multiple regular applications. Growers tend to differ on the precise schedule, but anywhere between three to seven days between applications isn't uncommon. The act of clearing out mites is made particularly arduous by the need to hit both the tops and bottoms of leaves during treatment. It wouldn't be unfair to call mites the King of Cannabis Threats.



Powderv Mildew

Before we talk about mildew, we first need to discuss ultraviolet frequencies. Natural sunlight contains ultraviolet frequencies called UV-C rays (at around 200- to 280-nanometer wavelengths of light) that destroy pathogens such as viruses, bacteria, mold and mildew in outdoor air. UV-C can even destroy beneficial organisms within an organic-nutrient formula. The UV-C rays can easily penetrate these organisms' outer membranes, where it then damages their DNA. The glass envelopes on a high-intensity discharge (HID) light tend to filter out UV-C because glass naturally blocks those frequencies. It's arguably for the best, since these rays can be harmful to the human eye, among other things.

Without some sort of filtration system de-



signed to continuously cleanse or sterilize your growroom's air, powdery mildew can spread very rapidly in indoor grow operations under HID lighting due to this lack of UV-C. Under these conditions, a wet leaf surface or small pocket of high humidity is all that's required for the powdery mildew (PM) fungus to penetrate the plant's waxy scale armor.

Powdery mildew will tend to establish itself either on young leaves up to two to three weeks of age, or on points of plant damage or death. Plants should be spaced to maximize air circulation and trimmed of old or dead leaves in order to minimize this threat. Infections are incredibly difficult to eradicate fully from a growroom, so infected leaves should ideally be quarantined before circulation fans spread the spores.

Since the mildew establishes itself in moist areas, from which it sends out additional armies of spores, grow-op air intakes should ideally be as dry and sunlit as possible. The fungus spreads by sending spores into the air, meaning that growers would be wise to filter their system intakes as best as possible with spore and/or carbon filters. However, powdery mildew can also arrive on clones without any obvious initial signs of infection. New clones should ideally be quarantined from the rest of the garden for at least two weeks, which should be sufficient for any pre-existing infection to announce itself.

The PM fungus cannot survive without the proper host plant. Although growers often talk about powdery mildew as if it lives within the plant, it never actually invades the plant tissue beyond the topmost epidermal cells. When mildew gets into a plant's skin, it can initially look like small circles of a light, snow-like dust on the topsides of leaves. For those cannabis strains that are susceptible to powdery mildew, the snow-like covering will intensify until the plant lacks the light necessary to photosynthesize.



Botrytis (a.k.a. Gray Mold)

Botrytis is a plant fungus that is known to attack a wide range of fruits and vegetables. Since botrytis tends to grow on dead or dying leaves and fruits, infections tend to occur around harvest time.

Because moisture is necessary for all the lifecycle stages of botrytis, cannabis strains that generate dense buds are also more susceptible to it. The spores require wet plant tissue at 55°F to 70°F in order to germinate. Once they do, high humidity and cool temperatures will ensure an efficient conversion of your prized buds into unusable material. Lowering the humidity is one way to slow or halt their progression.

The mold itself can take on a variety of colors, from white (like powdery mildew) to a smoky gray or brown color. In its wake, it can leave a dark brown rot or slimy, goo-type residue. If the mold strikes a plant within a flowering room, it can also release ethylene gas onto the neighboring plants. Since ethylene is also a plant hormone given off by ripened or rotting fruit, vegetables and flowers, this might cause unwanted consequences. Thus, any type of mold

needs to be removed from the growroom at the first sign of formation, even if it means removing maturing flowers.

Fungus Gnats

Fungus gnats start out as larvae that feed 1 to 3 inches below the surface of soils that are high in organic content. But it's the larvae's appetite for root hairs and small feeder roots that most concern cannabis growers. These root wounds can act as portals for the transfer of soil-borne pathogens like pythium and fusarium into the plant. As we know, it's not uncommon for one cannabis-pest problem to snowball into other, seemingly unrelated problems.

The adult female gnats will try to lay anywhere from 100 to 300 eggs on moist soil surfaces or in soil cracks in batches of two to 30 eggs—meaning this is a problem that can quickly multiply in a growroom. The sudden wilting, decreased vigor, poor growth, yellowing and foliage loss visible on plant topsides is typical of pests like the fungus-gnat larvae, which attack plant roots. Adult gnats are often seen flying beneath the plant canopy, as they require the moist soil near the surface in order to reproduce.



Check for nematodes in grow mediums and reservoirs!



Nematodes

Nematodes are tiny, wormlike creatures that mostly live in soil. They are so small and abundant that a fistful of natural soil can contain thousands of them. Not all nematodes feed off cannabis plants, however. The parasitic ones that do can cause a symptom called *incipient wilting*. This is when plant leaves droop during midday and recover at night, and it can be a telltale sign of infestation.

An outbreak of predatory nematodes within

PEST Control Techniques

Spider mites Neem oil/Azatrol Pyrethrum fogger with piperonal butoxide such as Dr. Doom (pyrethrum is extracted from chrysanthemum, and piperonal butoxide is an extraction of safrole oil). The goal is to fill room air, not coat plant leaves Predator mites (temperature and timeliness of application need to be considered when selecting a variety of predator. Thrips Neem oil/Azatrol Beneficial nematodes (breaks the root-zone life cycle) Minute pirate bugs Pyrethrum fogger with piperonal butoxide Spinosad **Powdery mildew** Neem oil/Azatrol Potassium bicarbonate Sulfur burner (best used before appearance of flowers; beware of house fires caused by burner) Organic compost teas Powdered mycorrhizae (will keep root zone healthy, where mildew begins) Botrytis Potassium bicarbonate Powdered mycorrhizae Fungus gnats Beneficial nematodes (breaks the root-zone life cycle) Neem oil/Azatrol Pythium Roots Excelurator (seaweed extract, B vitamins and beneficial bacteria) (root rot) Enzymatic root cleaners Hydrogen peroxide mixed with surfactant such as ZeroTol (extremely effective, but also destroys all other beneficial microbes) Pythoff (a chlorine-based sterilizing agent that will destroy your beneficial insects too) Aphids (plant lice) Soapy sprays once a week for a month for small-scale problems Pyrethrum/neem oil applied twice a week for intermediate problems Predator insects such as ladybugs or lacewings for large infestations Low-concentrate malathion or diazinon solution



an indoor grow may indicate that there's something wrong with the balance of microorganisms within the ecology of the soil. That's because nematodes have many natural enemies, including viruses, bacteria, protozoa, other nematodes and killer fungi. Cannabis strains can also naturally release exudates which repel or kill many nematodes, perhaps explaining why this pest problem tends to be uncommon in indoor grow ops.

Aphids (a.k.a. Plant Lice)

Aphids live very complicated lives, moving through multiple stages of development throughout the year that can vary quite a bit in appearance. There are thousands of different species, and different types of aphids vary in the plant parts they prefer to extract sap from—some actually feed from the insides of buds, but most feed on stems, branches and leaves.

The earliest damage can be difficult to spot; it should appear as light-colored spots near the leaf veins. This damage can then cause the leaves to curl, among other easier-to-spot symptoms of leaf damage. One dozen scattered

> adult aphids can multiply into thousands in just a few days.

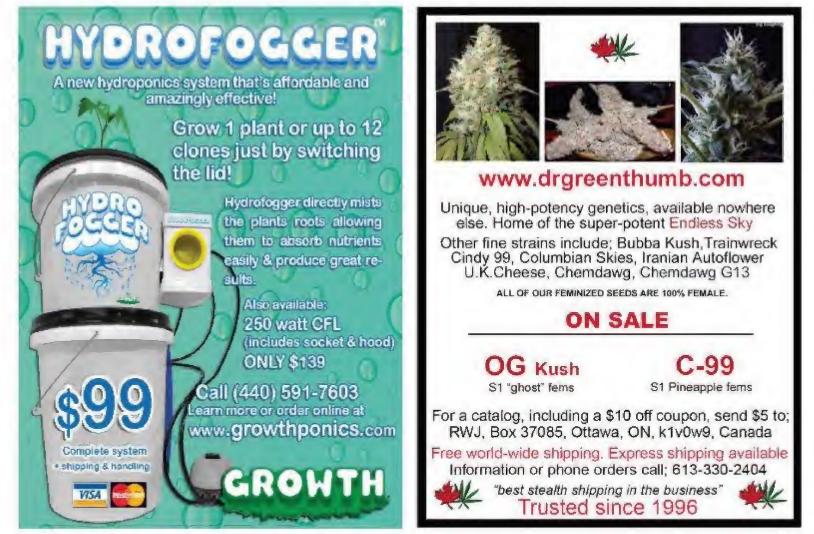
Like thrips and fungus gnats, aphids can also spread fungi, bacteria and plant viruses. Aphids actually have a symbiotic relationship with plant viruses, which is worsened by the fact that some aphids enjoy variety in their diet: They will actually land on plants and only briefly probe them with their sword-like stylet before seeking out other plants. Still, this is just enough time to transfer disease among neighboring plants. This behavior makes up for the fact that they tend to be poor fliers, unable to completely direct their movements in a wind.

Aphids are like the cows of the bug world because they exude a substance called honeydew from their rear ends, which ants unashamedly milk them for. This sugar-rich food source is more than just a tasty treat for ants; it's also a fertile growing medium for sooty mold. Sooty mold, in turn, can reduce plant photosynthesis and leaf transpiration. Where there is an aphid problem, there is oftentimes also an ant entourage protecting the aphids from predators. Making matters worse, the ants will actually find the aphids and herd them onto fresh grazing areas (in other words, your other healthy plants).



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PEST CONTROL



Whiteflies

Whiteflies are really quite similar to aphids in many respects—in fact, the two are genetically related. Like aphids, whiteflies suck sap and exude honeydew, and they also spread plant viruses.

Whiteflies and aphids even generate fairly similar plant symptoms, including the sooty mold that follows the honeydew. However, the tricky thing about whiteflies is that they generate few initial plant symptoms, and the adults hide out of direct view beneath leaf undersides. They use this natural advantage to multiply before being noticed.

Whitefly adults look like tiny specks of ash or tiny moths. When a severe infestation is disturbed, they will billow like a cloud before resettling. Like mites, whiteflies reproduce faster when temperatures are high (between 80°F to 90°F).

Algae

Algae is a plant, which means that most of the chemical options (such as algaecides) available for controlling it will kill cannabis plants as well. Algae requires sufficient heat, light and nutrients to survive. Reservoirs on recycling programs are often cooled below 70°F in order to minimize the growth of algae. Many growers also cover their rockwool media as an effective means of control. And though older plants can handle it, the minimum dose of hydrogen peroxide required to treat algae (50 ppm) also tends to be phytotoxic to young plants.

When algae appears in nutrient solutions or on rockwool slabs, it can increase the pH of the solution or medium during the daylight hours and decrease it during the night. These pH swings may or may not be bad for your plants, as different elements are absorbed by the plants to varying degrees based upon pH values.

A little bit of algae in a grow op is nothing to lose sleep over. However, there are downsides. Insects do feed upon algae; the algae is feeding upon nutrients that were intended for the plants; and algae can become serious enough that it can, over time, block drip emitters and aeroponic sprayers, or even seal the medium off from fresh oxygen. Furthermore, when algae blooms, dies and decomposes, it can reduce the oxygen available to plant roots. This decomposition process can also release toxins into a reservoir, which in turn act as a food supply for harmful plant fungi. It's worth noting that when roots are deprived of oxygen, they tend to become susceptible to pathogens like pythium.



Pythium

Pythium is a water mold. Some pythium spores actually have tails (called flagella) that permit them to navigate through water. This means that pythium is less of a concern in soil than it is in systems that recycle nutrients. In such systems, it's not uncommon to see pythium affect all of the plants that share one single reservoir. When this occurs, the plants will wilt and turn yellow over time. Pythium is easy to spot because it turns the bark at the base of the plant stalk brown, and it becomes less of a concern as plants mature.

There are two different types of pythium spores: One germinates at 82°F, the other at 59°F. Accordingly, eliminating large temperature fluctuations in the nutrient solution or medium will help to minimize the chances of a pythium attack.

Eradicating Pests During the Vegetative-Growth Phase

When it comes to thrips, it's important to realize that insects in the family *Thripidae* don't have the standard hooks at the end of their legs like other insects; instead, they have hoof- or bladder-like appendages. By far, the best and most organic way to greatly reduce a thrip infestation is to take the plants outside the growroom and shake them off. The adults will fly away, and many of the nymphs will jump from the shaking plants. But this will probably not fully eradicate them.

Of all the available treatment options, one of the most effective treatments for both mites and thrips during the vegetative-growth cycle is neem. However, the application technique is incredibly important: Although neem will be absorbed by the plant and transported around, its effectiveness is in large part a function of how well it's applied to the plant. That's because neem works, in part, by smothering insects. And for this reason, dipping the plant in a neem solution is always more effective than spraying—not to mention that dipping gets the neem underneath leaves and inside those tiny crevices where bugs can hide.

A simultaneous neem dip and drench can

eradicate a thrip infestation, whereas a spraying may only contain it. But dipping plants is only possible when they're smaller and well supported. Since dipping is as quick as it is effective, growers who maintain mother plants may decide to limit the size and shape of these plants. Since neem works best if applied repeatedly every three to five days through the third week of flower, any trick for speeding up the process of application will permit the grower to increase the number of applications per cycle.

Neem solution should be used within hours of mixing it into water, as it is known to degrade rapidly with exposure to UV. Growers can also add organic dish soap to their neem solution at a rate of 1/4 teaspoon per quart of diluted neem or Azatrol solution. This will reduce the beading of fluids due to the water tension that cannabis-leaf hairs can create. Not only will this improve the treatment's coverage, but it may also reduce leaf burn, because water droplets suspended above the leaf by its hairs can focus light with sufficient intensity to burn the leaf in various locations.

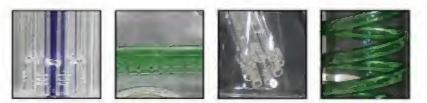
For this reason, it's best to treat the plants with the grow lights off and to permit as much time as possible (preferably four to eight hours) for absorption of the neem. Growers should take very careful notes on their treatment methodology, because the crisp of leaf burn can take a day or two to show up. Many growers cut the neem dose in half and rinse it off the leaf tops four hours after application just as a preventative measure.

Another new organic solution that has been very effective as a neem substitute is SNS-217, an all-natural rosemary-oil extraction that is mixed with water and applied to plants. Application is similar to neem in that growers can spray, dip or rub the solution onto their plants. SNS-217 is particularly effective in dealing with mite problems and is generally safe for humans. One application per week, even on healthy plants, can help prevent an array of pest problems before they start, just as with neem oil.

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Dealing With Soil-Borne Pests

When fungus-gnat larvae run out of fungus in the soil to eat, they can start to nibble on your plants' roots. Large fungus-gnat outbreaks can reduce yields and even ruin crops. The trick with any pest that spends some portion of its life cycle in the soil—which includes both fungus gnats and thrips—is to focus on the soil.

There are two options when it comes to soilborne pests: a neem-oil soil drench or beneficial nematodes. The application of beneficial predator nematodes to the soil every two weeks is usually sufficient to break the life cycle of both of these predators. The *steinernema* and *heterorhabditis* species work best. You can apply the nematodes with nutrients, but be aware that your pump may possibly kill them. Obtaining natural predator bugs like nematodes is easy, and they can even be ordered online and sent to you via regular mail. Other advanced-gardening centers (and even pet shops) may also carry beneficial predator insects.

Dealing With Pests During Flowering

Whether or not your thrip problem can be effectively treated with neem will depend upon the part of the grow cycle you're in. This is because thrips can actually feed upon your buds from the inside during bloom, making them invulnerable to spraying or fogging with pesticides, and also be-

Predator or beneficial bugs like these lady bugs eat harmful pests without hurting plants. cause application during bloom can damage delicate flower sites. Thus, the problem demands a different sort of solution.

The term "beneficial insect" generally refers to insects that do not feed upon the plant of interest. Beneficial nematodes and minute pirate bugs can actually survive applications of neem; however, it is possible to smother any insect with neem, given a sufficiently thick application like a dip. Once the neem application has dried, it will no longer harm the beneficial insects.

The minute pirate bug is a beneficial insect that feeds exclusively on thrips (including the ones *inside* your prized buds). Each minute pirate bug can eat up to 20 thrips a day, making it impossible for the thrips to get a grip on your garden. Although it's certainly true that the minute pirate bug is known to go into a state called "reproductive diapause" (i.e., dormancy) in response to shortened days, the bugs will still persist long enough in a flowering room to have a useful impact upon thrip populations.

Knowing that mites will leave a dying plant, mite infestations late in flower have caused many growers to skip their flushes and tear down their plants early. When neem is not an option, there exists one other intriguing and legendary technique for fighting spider mites: carbon dioxide (CO_2). One grower reports that half of a 50-pound cylinder of carbon dioxide slowly drained over four hours into a 2,500-cubic-foot (11' x 22') room with the lights off and the room temporarily sealed was effective as an instant knockdown specifically for the control of spider mites. The outcome was piles of dead mites on the floor beneath his plants.

Details on CO₂ technique are sparse, so growers are advised to take detailed notes and share their experiences on this topic with others until it's perfected. That said, it's vital for everybody to realize that excessive carbon-dioxide levels can cause a person to become unconscious, at which point further exposure can be absolutely lethal.

CONTINUED ON PAGE 96

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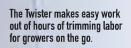
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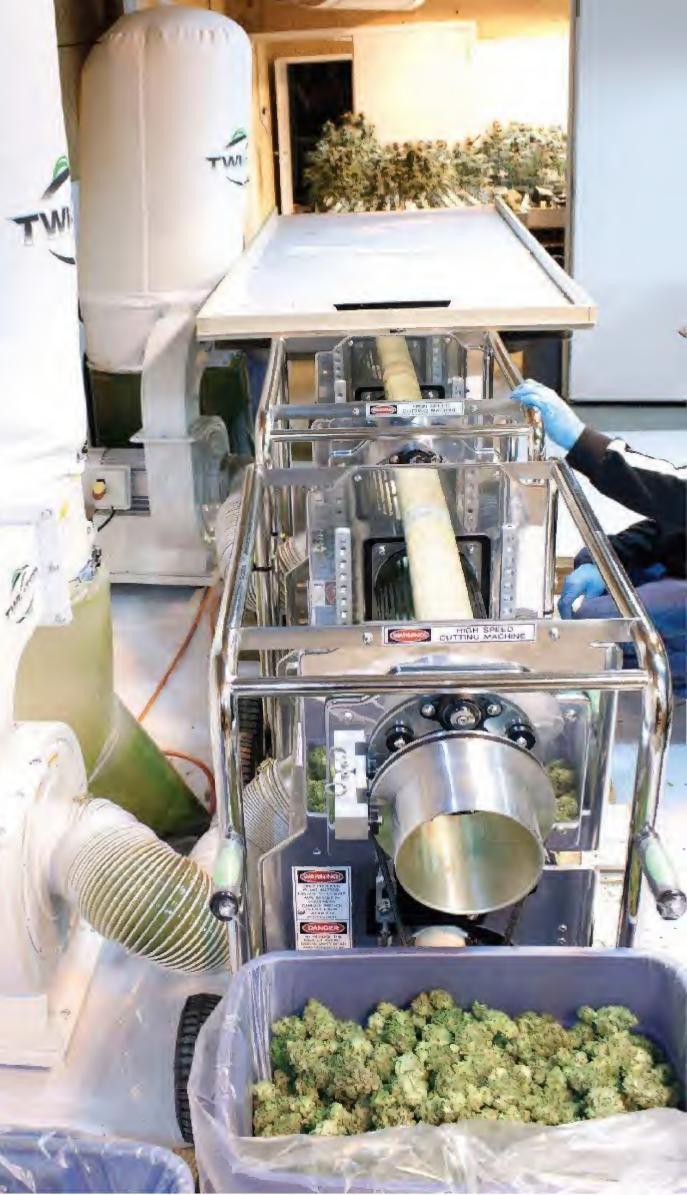
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GrowLabs provide easy environmental controls combined with quick takedown capabilities.

12th Annual HIGH TIMES

S.T.A.S.H. AWARDS

For the past dozen years, the HIGH TIMES Cultivation Department has scoured the globe, from hydroponics-industry trade shows to the most humble cannabis farms, to find and report on the best new innovations in ganja-growing technology for what we call the S.T.A.S.H. Awards (for Significant Technological Achievements in Secretive Horticulture). Our prize picks for "grow gear of the year" comprise the most useful and highly beneficial pot-growing products that help reduce workloads and increase harvests. Compiled by Eric Schoner.

Best Power Trimmer

You know you've got a high-class problem when trimming your massive cannabis harvest takes up more time than you can afford to spend. For commercial growers with too much bounty and not enough hands on deck, there's The Twister, a precision piece of machinery that uses 11 self-sharpening blades to make over 300 cosmetic cuts per second. The 2-horsepower, 3,450-rpm motor vacuum makes this the strongest industrial trimmer on the market. One of the best features of the Twister is its ability to be used for hours on end without overheating. The Twister also breaks down lightning-fast, allowing for seamless and easy cleaning and storage. With watertight seals on all of the electrical work as well as the motors, you can power-wash the entire thing, saving even more of your valuable time for loftier pursuits.

Price: Call for a quote! Contact: The Twister Machine, 888-254-3204, (US) 213-531-0114, (Canada) 604-495-1895, thetwistermachine.com

Best Grow Tent

THE GROWLAB HORTICULTURAL PORTABLE GROWROOM

When deciding how to construct a growroom, there are many factors that are often considered. How much space is available? How to waterproof the area? And most of all, how fast can the room be broken down? These portable growrooms, manufactured by GrowLab Horticultural, addresses all of these concerns. Providing growers with a maximum grow area of up to 9'6" x 9'6" x 6'7" (not to mention a variety of smaller sizes), these water and air tight grow laboratories can be collapsed quickly and easily. A thermal film on the tent's interior is not only waterproof but is also highly reflective and insulative (97 percent thermal retention).

The GrowLab GL290, our choice for best Grow Tent of 2010, incorporates a moveable framework of poles in the ceiling, making the adjustment of light positions or filters that much easier. Reinforced ceiling poles, especially near the middle to prevent sagging, provide additional safety in holding necessary lighting equipment. In addition, the intake and exhaust ports are adjustable to fit various sizes of ducting for cooling lamps and circulating air. Exhaust fans can also be attached at the sock port in the rear corner of the roof, where they can sit atop the tent, externally, eliminating extra heat from the growroom and providing a safer solution than strapping or hanging more equipment inside.

And as if there weren't enough lavish features, most models of the GrowLab feature clear viewing windows that can be covered or uncovered to check on gardens without disrupting the controlled environment of an indoor growroom. *Price: GL290 \$919.95; other sizes range \$90 to \$730.*

Contact: everestgardensupply.com; (888) EGS-2007.

Best New Cloning Chamber BC NORTHERN LIGHTS NURSERY

Every grower wants a fast turnover rate with high-quality results, and it all starts with happy, healthy clones and seedlings. Perennial S.T.A.S.H. Award winners BC Northern Lights have developed and released **The Nursery** in order to simplify the cloning process and enhance the earliest stages of plant life. They've incorporated cutting-edge technology to give users the ability to control various stages of growth using touch-screen technology and an auto-monitor-ing system. The Nursery contains 84 clone slots in 12 different chambers, allowing growers to optimize the conditions necessary for cuttings to thrive by controlling each chamber individually with misters and temperature controls. Another outstanding feature is the ability to grow clones at various stages of growth, whether fresh off the mother plant or rooted and up to 10 inches tall. Some of the finest medical-cannabis dispensaries use The Nursery to consistently provide their many patients with clones, and now you can too.

Price: Call for a quote!

Contact: BC Northern Lights, 888-236-1266, bcnorthernlights.com

Best Budget Growbox THE SUPERLOCKER FROM SUPERCLOSET

Growboxes allow their users to control their environment while concealing their hobby from the prying eyes of neighbors and authorities, but many are priced way too high for the amateur grower to consider. That's why we're so happy about the arrival of the new SuperLocker from SuperCloset, a fully functional 15" x 18" x 66" self-enclosed unit that contains everything you need to plug in and start growing. The SuperLocker includes an air-filtration system, a150-watt HPS light on an easy-to-use pulley system, and highly reflective panels that reduce the chances for mold. The vegetation chamber on top ensures perpetual harvests, and the lockable door adds to the stealth factor. Add CO₂ for an extra \$199 and supercharge your hydroponic grow locker to new heights. You can also rest easy due to their no-hassle three-year warranty.

Price: \$1,195

Contact: SuperCloset, 877-GROW-SUPER (877-476-9787), supercloset.com

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composition

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Scientific Soils Distributor Inquires www.scientificsoils.com

liscountarowshop.com

SCI SCIENTIFIC SOILS PREMIUM PLANTING MIX



Best New Rotating Grow Unit

Plants that rotate grow thicker stems and denser foliage than stationary ones due to increased light exposure at all areas of growth. Moving the plants this way also eliminates potential problems caused by heat spots or perpetually shaded leaves and builds stronger stalks as they grow and move against each other. The innovative new self-enclosed hydroponic unit called **The Spinner** provides 12 individual plants with the maximum exposure to light that a grower can achieve indoors by rotating each plant on its axis around the central light source (either a 400-watt or 600-watt HID bulb). The proven "flood and drain" nutrientfeeding method nurtures the roots, and hot spent air is exhausted using a 125-cfm fan. The simple-to-assemble and easy-to-use Spinner rivals other 1,000-watt stationary systems in dry-weight yields, and you can stack up to three units for maximum efficiency over the same footprint under 8 feet of ceiling space.

Price: \$1,999

Contact: Hydroplex, 877-906-SPIN (877-906-7746), hydroplexonline.com

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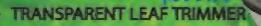
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Best Growbox Innovation

TOUCH-SCREEN SENSORS FROM BC NORTHERN LIGHTS It's difficult to keep track of the ever-changing conditions inside self-contained growing units, and keeping



harder. Luckily, the growbox scientists at BC Northern Lights have developed their new all-inone Sensory Overload touchscreen managing system, which allows its users to monitor and control pH, TDS (nutrient levels), water temperature and CO₂ as well as atmospheric temperatures and humidity level. Min/max

them at optimal levels is even

daily reports reveal what's going on when you're not there and can bring problems to light before they escalate. The easy-to-navigate interface and pre-programmed settings maximize success for beginners, and seasoned growers can customize and upgrade the sensors to their needs. *Price: Call for a quote!*

Contact: BC Northern Lights, 888-236-1266, bcnorthernlights.com



Best Vertical Hydro Garden VERTICAL HYDRO 90

The future of vertical growing is here! Bringing functionality and practicality, the Vertical Hydro 90 provides cutting-edge hydroponics with new features that are unrivaled by any other vertical grow systems currently on the market. The entire system is encased in easy-to-move sliding walls that allow for simple light-tocanopy adjustments. It's clear that the designers at Vertical Hydro Garden took customer concerns into serious consideration. Most vertical hydroponic systems have fixed walls, predetermining and setting in stone the light-to-canopy

ratio, thereby limiting light penetration through denser canopies. Besides the movable walls, there's a 6-foot light track to further enhance the functionality of this system. Each of the movable walls holds 45 net pots, giving the grower a total of 90 plants to flower. There's a 50-gallon reservoir on each side, providing enough nutrient solution for all 90 plants throughout their grow cycle. *Price:* \$4,500.00 + \$150.00 shipping; Anywhere in the continental US Contact: Vertical Hydro Garden, 916-673-6585, verticalhydrogarden.com

Best LED Grow Light STEALTH GROW TECHNOLOGIES

With so many competitors on the LED lighting market, it's hard to decide which unit provides the best bang for your buck. The new line of Stealth Grow LED Lights from Stealth Grow Technologies provides its users with the cutting edge of LED growing at some of the most competitive prices available. The variety of different lighting systems helps indoor farmers drastically cut electricity costs while limiting heat buildups due to HID bulbs. Utilizing 2-watt bulbs as opposed to the 1-watt industry standard, Stealth Grow bathes your plants in the brightest light we've seen yet from any LED sys-

> tem. The built-in fans push any heat generated from the enclosed system through the top and away from sensitive plant tops. This allows you to put the Stealth Grow LEDs closer to your canopy level than ever before. *Price*: \$999 (SG 300: 3' x 4' coverage area); \$1,599 (SG 602: 4' x 5'); \$3,199 (SG 1202: 4' x 8')

Contact: Stealth Grow Technologies, 800-770-9788, stealthgrow.com

Quantum

Best Ballasts QUANTUM SERIES BALLASTS

Tired of hearing the sound of vibrations from your old ballast on the floor of your growroom? The **Quantum Series Ballast** eliminates annoying background noise from your ballasts and is capable of handling both high-pressure sodium and metal-halide bulbs. These ultra-lightweight digital ballasts provide optimal light output while running cool to the touch and generating much less heat than typical magnetic ballasts. The availability of a dimmer switch is crucial, whether you're looking for energy efficiency and lumen control during early plant growth or just trying to ride out a hot spell. The option to run the Quantum Series Ballast at either 120 or 240 volts simply by switching the power cords (included) gives the user unrivaled control over energy consumption. Offered in 400-, 600-, 750-, and 1,000-watt models, Quantum Series Ballasts provide the highest-quality product to a full spectrum of indoor growers.

Price: 600 watts, \$204.75; 1,000 watts, \$393.75 Contact: Quantum Horticulture, 877-HYDRO-US (877-493-7687), quantumhort.com



Easy Roots: \$19.99



IceBox: \$139.95



Sentinel: \$520



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ETETE

BC North: Call for Pricing

Grow Tent Kits: Call for Pricing

Home Grow Depot is an information and products hub that offers all growers the opportunity to maximize their efforts, production and quality. Home Grow Depot offers information from commercial agriculturalist, authors, journalists, grad-level and well-known backyard scientists. We pride ourselves on offering a wide range of products at the lowest possible price, while sharing our research and our results.

Home Grow Depot carries a wide variety of high quality organics, hydroponics equipment, and full grow set-ups. We only sell products we thoroughly understand in order to help you maximize your efforts. The grower comes first. Profit margins and manufacturer opinions come second. We're available 7 days a week!

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Raptor Reflector: \$260

OME

Quantum Ballast: 1000 watt: \$355.95 600 watt: \$233.95





Ledt600: \$1,100

Infinite Breeze: \$55.95



Best Plant-Moving Innovation THE RPM (REVOLUTIONARY PLANT MOVER)

Imagine being able to simulate the best conditions of growing outdoors without all of the drawbacks. The Revolutionary Plant Mover (RPM) replicates the sun's natural movement, providing the maximum percentage of energy for plant growth. The patented RPM is the only system to have a rotating base plus four discs that rotate along with it. While the base rotates counterclockwise for one turn every 10 hours, each of the four independent trays rotate clockwise four times every 10 hours, thereby simulating the actual sunrise and sunset. Sitting on top of the rotating trays are four 5-gallon buckets fed through two low-pressure, high-flow tubes. These feeding arms supply your prized plants with 24 hours of nutrient-rich, oxygenated water. The RPM uses a 400-watt light yet has the ability to rival the dry yield of 1,000-watt grow! Why waste money on extra electricity and heat when you can get equal results with a lower-wattage light combined with an RPM? They don't call it "revolutionary" for nothing. *Price: About* \$1,900.00

Contact: Revolutionary Plant Mover, (702) 473-5901, revolutionaryplantmover.com

GEAR DE THE

GET THE BIGGEST YIELDS FROM YOUR BLOOM BOOSTER

Most likely, you're one of the 91.7% of growers who use bloom boosters every bloom cycle, because you want to be sure your boosters give you the biggest yields possible for your garden ... to be precise ... you look for bloom boosters that give you:

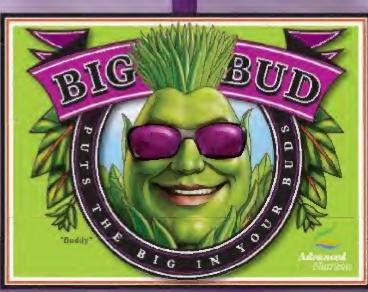
- Larger, heavier, denser flowers
- Flowers with more essential oils, aromatics, terpenoids, phenols and other potency factors
- Measurable, significant increases in overall harvest weight and market value

But most bloom boosters don't measure up to these goals. In fact, until recently poorly-absorbed forms of phosphorus and potassium (P and K) were the main ingredients in most bloom boosters.

Worse, almost all bloom boosters have incorrect ratios or types of phosphorus and potassium. Most provide double the amount of phosphorus to potassium. That's not useful. Your plants need much more potassium

than phosphorus during bloom phase.

And when too much phosphorus is dumped into your plants, it creates a potential for phosphorus toxicity that works against flower production and overall plant health. Not only that, your crops may taste harsh so they hurt your throat and lungs.





PRODUCT TYPE: Bloom Booster

GARDEN TYPES:

Liquid Big Bud has been specially designed for use with all hydroponics, sphagnum, and soil growing mediums. Big Bud has been developed for use with any and all hydroponic, aeroponic, drip irrigation, NFT, flood & drain, drip emitters and continuous liquid feed growing systems.

WHEN TO USE: Peak bloom phase.

MIXING DIRECTIONS:

Use 2 mL per Liter during weeks 2 through 4 of your flowering phase.

GROWER EXPERIENCE LEVEL: Hobbyist, Expert, Professional and Grand Master Growers

> DERIVED FROM: Potassium Sulfate, Potassium Phosphate.

COMPANY FOUNDERS' NO-RISK, 100% MONEY BACK GUARANTEE:

If for any reason you're not absolutely delighted, we'll refund all your money back it's that simple.







Best Growing Container

With typical plant pots and buckets, roots reach the sides and bottom and then begin to swirl around, staying close to the outside of the container for less-than-optimum results. Allowing air to reach those roots is called "air pruning" because it encourages roots to grow back into their medium and take more advantage of all the space and nutrients available. The new **Air Pot** system from Superroots utilizes this proven technique and actually reduces the need to transplant from container to container. The Air Pot's walls are comprised of a high quality plant safe plastic, that are holes surrounding the container. The walls are fixed to a slotted base that is raised off the bottom of the walls for optimal drainage. One of the main benefits of the holes surrounding the walls is that each hole allows oxygen to reach the roots, making these pots perform excellently in both hydroponic and soil gardens. The durable, high-grade, recycled HDPE material can be used multiple times without fear of contamination, and the pots are available in sizes from .3 gallons up to 12 gallons. *Price: Various*

Contact: Terra Hydro Co., 877-839-GROW, calgrowers.com



Best Water Innovation

Water is the lifeblood of any plant, cannabis included, and making the most of your water is essential to growing success. We're amazed by the benefits provided by the new cutting-edge product called Yield 2.0, which increases harvests by energizing water. We were initially a bit skeptical of this product's claims, but our testing revealed that as plain water passes through the magnetized chamber, the molecules of hydrogen and oxygen transform into looserbonded molecules. A looser molecule means that each drip of water will be able to penetrate the leaves more effectively, thereby lowering the amount of water and nutrients needed. The creators of **Yield 2.0** are so sure that their product will yield 10% to 30% more that they offer a 100% money-back guarantee on each unit. *Price: \$550*

Contact: Home Grow Depot, 877-821-GROW (877-821-4769), homegrowdepot.com



Best Nutrients

With an unmatched dedication to growing great buds, **Advanced Nutrients** has provided growers around the world with the best variety of nutrients and plant supplements for years. Advanced Nutrients now provides sets of their best nutrients in bundles for every level of gardening expertise, including the hobbyist, expert, professional and grandmaster grower. Regard-

less of what level you are, Advanced Nutrients guarantees that their easy-to-use prod-

ucts provide the highest-quality results. Their latest products, Ancient Earth and Jungle Juice, are affordable and efficient new nutrients that take ad-

vantage of the benefits of humic and fulvic acids for rapid plant growth. *Price: Various*

Contact: Advanced Nutrients, 604-854-6793, advancednutrients.com



Best New Deep-Water Culture Innovation

We've seen countless versions of DWC units on the market, but none with the versatility and efficiency of the new Hydrofogger. This affordable single-bucket system works great for even the most inexperienced of growers by utilizing an ingenious double-reservoir system that provides plenty of room for a huge root mass to grow. The Hydrofogger ensures the perfect ration of oxygen-infused nutrientwater solution by incorporating a misting system that continuously "fogs" the growing roots with essential nourishment and also keeps the reservoir well aerated. All that 02 in the root zone translates into quick and massive plant growth aboveground. Whether you're growing one monster plant or 12 smaller clones, the Hydrofogger is capable of satisfying all of your needs from seedling to harvest for true DWC growing. Price: \$99

Contact: Hydrofogger, 440-591-7603, growthponics.com







The Best in New Hydroponic Technology!

THE SPINNER is unlike any other hydroponic system on the market. Inside THE SPINNER, each plant is rotated on its axis and exposed to light on all sides. The roots within the root chamber are also rotated, improving nutrient distribution.

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THE SPINNER uses only 12 plants per unit, decreasing your power consumption and increasing your yield.

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SPINNERS stack easily with no extra parts required. Stack SPINNERS three high in a 2.5' x 2.5' area with a standard ceiling height.

360° EXPOSURE

Each plant automatically rotates, exposing 100% of the plant to the light source.

QUANTITY + QUALITYGreater yields at a higher quality than ever before.

EASY ACCESS With sliding doors positioned all around the unit,

accessing any plant is easy.



"It's the most innovative grow machine that I've ever seen. I love The Spinner." - Bruce Perlowin



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Best Cloning Tray EASY ROOTS

Timely and properly rooted clones can make the difference between a successful growing project and a frustrating exercise in humility. The new **Easy Root**s cloning trays provide their users with a quality product at an affordable price that takes the guesswork out of rooting cuttings. This compact unit uses foam-bound Canadian peat that's infused with beneficial bacteria to help strengthen the root system without harming your precious plants. Easy Roots come pre-wetted, with condensation forming on the humidity domes ensuring just enough moisture to get the job done. Cuttings started in Easy Roots are easy to transplant into soil, soilless mix or most hydroponic systems, and the success rate is phenomenal. *Price:* \$19.99

Contact: Maine Indoor Garden Supply, 877-522-MIGS (6447), maineindoorgardensupply.com

Best Grow-Tray Supports STURDY-BUILT FLOOD TABLE BENCHES

Strong frames supporting grow trays are a must in order to avoid catastrophic issues such as breakage or flooding. We love the **Sturdy-Built Flood Table Benches** for their amazing durability as well as their versatility in the grow-room. The benches were obviously manufactured with a functional approach that pays extremely close attention to detail. The pitched design keeps stag-nant water from pooling, and the rust-resistant powder coating ensures max-imum longevity. The unique pocket design of the stand keeps the flood tables from rocking side to side; center supports prevent them from sagging; and locking casters make them easy to move at will. The manufacturer's lifetime guarantee demonstrates real confidence in the quality of these benches. *Price: Various*

Contact: West Coast Growers, 888-924-4769, westcoastgrowers.com





We've always loved the incredible trimming products available from multiple S.T.A.S.H. Award winners TrimPro, and year after year they continue to outdo themselves in technical achievements. Their newest advancement is the TrimPro Rotor, a completely automated unit encompassing all of the best qualities of their classic TrimPro, but with higher walls to keep your prized plants in the cutting zone. Simply drop buds into the trim bucket and watch as the non-stick rubber arms gently move them around the high-quality tempered-steel blades, leaving you with perfectly manicured buds every time. (TrimPro also offers a variety of options for the grate size.) Once the TrimPro Rotor manicures the buds, it stores all of the valuable trimmings in a lightweight, detachable bag for easy transportation. Price: \$1,435 Contact: TrimPro, 450-349-0811,

trimpro.ca



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Best Air Circulation

Moving the air that accumulates closest to your plants is crucial for carbon dioxide (CO₂) to reach leaf surfaces, while also strengthening stalks and branches through agitation. The wall-mounted Infinite Breeze Fans from Quantum Horticulture not only oscillate from side to side but also move up and down in a W-shaped rotation that reaches much more of the canopy for more effective air circulation at plant level. UV-resistant plastic ensures that your small investment will last for many grows to come, and Infinite Breeze Fans offer three speed settings and innovative wall mountings that keep them out of your way, saving valuable floor space for more plants. *Price:* \$59.95

Contact: Quantum Horticulture, 877-HYDRO-US (877-493-7687), quantumhort.com



that keeping excessive noise to a minimum is crucial to the success of any pot-production project. Even in legal gardens, loud fans running all day sound almost like airplanes taking off and can really get annoying. After years of fine-tuning, the new Viagrow Air Silencers finally solve this aural dilemma using technology similar to the muffler on the back end of a car. The ultra-lightweight design doesn't compromise the strength and integrity of your ducting, and the aluminum-cast flanges muffle almost all of the noise created by your fans and filters. The simple-to-install Air Silencers come in a variety of lengths and duct sizes, providing almost endless options for sound suppression.

Price: \$89.99 (6" x 50 cm); \$129.99 (10" x 75 cm); and more

Contact: Hydro Wholesale, 866-803-2100, hydrowholesale.com

Best Reflective Product EASY GROW REFLECTIVE FILM

Maximizing light supply means taking advantage of every lumen available to your plants, and using reflective material to surround a grow space can increase yields substantially when implemented properly. Our testing has revealed that Easy Grow Reflective Film provides optimal reflection, increasing light penetration through the densest of canopies. With seven highly reflective liners to choose from, Easy Grow Reflective Film offers reflection products to satisfy any grower's needs. Their ECO Diamond Diffusion Foil is covered in a diamond-pressed pattern for an even distribution of light that also works as a thermal reflector, preventing heat leaks from being spotted from above by police helicopters using thermal imaging to find your grow. *Price:* \$30 to \$165 per roll (33- and 100-foot rolls), depending on the grade *Contact: Easy Grow Reflective Film*, 866-913-4769, easy-grow.co.uk

12 Plant PhD's Discover

The Japanese Engineering Breakthrough That's Allowing Growers

To Multiply Their Yields From Their Plants Within

From Their Plants Within The Same Bloom Time

CONNOTSSEUR

We all want our plants to get into peak bloom phase faster and to yield a bigger harvest. Now, a team of 12 plant PhD's and their research assistants believe they have found the answer ...

"The secret", says Dr. Savov, "Is we implement the Japanese engineering principle of continuous improvement – called kaizen – into developing a better 2-part premium bloom base fertilizer. The principle of kaizen states that small, continual improvements at each step of a multi-part process equals a much larger, compounded total increase in performance in the final product."

Compound Improvement ... The Most Powerful, Plant Growing Force In The Universe?

Much like Albert Einstein called compound interest, "the most powerful force in the universe"—these small, continuous improvements at each phase of a multi-part process yield a very powerful, impressive end result.

So, when it comes to a premium bloom base fertilizer — a team of 12 PhD's working for Advanced Nutrients in a leading Bulgarian research lab simply found multiple ways to improve upon each stage of the two-part process of growing plants.

In the end, it worked exceptionally well to achieve a bigger, compounded, yield — in at least one documented head-to-head, consumer trial — over 40% bigger!

How This Scientific Breakthrough Gets Your Plants Into Bloom Faster and Multiplies Their Yield Without Increasing Your Bloom Time

First, the scientists wanted to improve upon the actual ingredients used in their 2-part formula. The idea was to give you better "Building Blocks" for your plants to use to get bigger yields, more colorful flowers, a stronger aroma and maximum potency. This was the first stage the team improved upon.

Next, they wanted to enhance your plant's abilities to get the maximum absorption of these nutrients because having the highest quality ingredients without ensuring your plants can fully absorb them is worthless. The scientists discovered that most growers aren't seeing bigger yields with other fertilizers because their plants aren't able to effectively absorb the nutrients being used.

Obviously, improving the absorption abilities of your plant greatly compounds the effectiveness of the high quality ingredients being used! Lastly, in an effort to maximize every part of your plant's deepest core levels of plant bloom metabolism and floral production, the scientists developed a proprietary blend of floral growth co-factors to activate and control these core issues.

These co-factors include amino acids and amino acid precursors essential to protein formation which promote cellular metabolism, replication and other bloom processes. In addition, other proprietary co-factors create enhanced changes in how plants carry out bloom phase functions.

Let's examine how the scientists improved these phases in developing the ultra-premium, 2-part bloom base nutrient for Grand Master Growers – Connoisseur!

PR PARTNER THE

Instead of using low-quality, questionable ingredients—the team at Advanced Nutrients invested heavily in putting to use only the most potent, most effective, most proven ingredients possible (ingredients no other company uses because of the high cost to both source and manufacture these ingredients into bloom fertilizers!)

How To Ensure Your Plant Gets The Maximum Uptake Of Nutrients ...

To start with, every single one of the micro-nutrients used in Connolsseur is chelated so you get maximum absorption and uptake of these amino chelates into your plants. With a theoretical absorption range of pH 1-10, this in effect means you get the highest absorption rate possible of these life-giving micronutrients for as long as your plant is alive!

What's more, Advanced Nutrients, has also invested heavily into chelating a high percentage of the macro-nutrients used in Connoisseur to get your plants to bloom faster and keep them in that bloom phase longer!

How Growers Of High Profit Plants Are Making More Money With This One, Simple Scientific Breakthrough ...

If you count on your plants to make you money, you're going to love Connoisseur!

Here's why commercial growers of rare and profit-producing plants love this comprehensive hydroponics fertilizer formula ...

- You get a faster time to peak bloom time ... meaning you get to sell your plants faster!
- You get more flowers and more weight per flower ... which means more money per plant!
- You get more aroma, more taste, and more color in your plants ... which means you get more satisfied and repeat customers!



The bottom line? You get more profits per each crop cycle! Celebrity

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Soil and soil-less mixes are the most forgiving grow mediums for the beginner grower.

With 14 of the nation's 5D states (plus DC) already on the books as medical-marijuana states, and more on the verge of passing similar laws, it's no surprise that more and more people are growing in neighborhoods all around the country. And as more and more people start to grow their own herbal meds, society will continue to adapt, perceiving marijuana as just a normal part of life. That's why we've decided to put together a few simple ways to get started for all you out there thinking of getting on the medical bus to homegrown happiness. If you're new to the scene, then this article is just for you, since its focus is on small-space growing with good returns and, of course, good buds. By Felix Green

EASY WAYS TO GET STARTED

ABOUT SOIL

For most new growers, soil is usually the best and easiest way to go. It has a tendency to be more forgiving of the minor mistakes that can happen when you're starting out. There are a number of different ways that you can use soil, everything from simple plastic pots to 5-gallon buckets or more elaborate containers like Earthboxes.

Earthboxes are one of the more expensive options, but they're pretty much worth every penny. The reason these boxes are good for beginners as well as advanced growers is that they protect against overfeeding and reduce the chances of underfeeding. And for any new grower, learning the feeding cycle is an important and difficult process.

If Earthboxes seem a little too expensive or intricate, then 3- or 5-gallon buckets will work just fine—but make sure that you buy two buckets for every plant you plan to grow. The reasoning here is that you can then drill holes in the bottom of one pot and place it into the other one without holes. This helps to improve drainage and reduce the chances of overfeeding, which can create root rot and impair healthy root growth.

The holes in the first bucket allow any unused water to drain out the bottom into the second container. If you don't have some type of drainage in your pots, excess water can build up at the bottom and prevent a good water-toair ratio. If you can't afford to buy extra buckets, make sure you still cut holes in the bottom of the ones you do use (assuming they're not already there) and place a plastic catch plate under them.

The key to any healthy, productive plant is a good root base. Without that,

the plant can't absorb the proper amount of nutrients to form healthy buds. No matter what type of container you use, make sure that you buy a good soil or soilless mix. Any of FoxFarms' mixtures are great, such as their Planting Mix for seedlings and clones, or their Marine Cuisine for the vegetativegrowth stage (and sometimes the first few weeks of bloom as well). Light Warrior is another great mix that comes highly recommended.

These products are especially good for new growers because they come with basic nutrients already mixed into the soil. With the nutrients premixed, all you have to do is feed the plants with water at the proper pH for about three to four weeks, depending on their growth. After about a month, the plants will have consumed most of the nutrients in the soil, so you'll need to start adding nutrients on your own.

The pH factor is another reason that growing in soil is better for beginners. Over time, plants in soil can slowly adjust to a slightly "off" pH level. Most plants like the pH balance to be somewhere between 6.2 and 6.7 in soil, whether you're using plain or nutrient-mixed water. If the pH is off-kilter, your plants will not take up nutrients through their root system. A grower can tell if the pH is off by the way a plant's leaves twist at the tips; they resemble a hand that has lost its finger-muscle function.

So with soil, it can be as basic and easy as you want to make it at the beginning. Just buying the right soil and simple nutrients can get you started on your way, eventually progressing onto more complicated diets and environments that will help you produce even bigger buds.

HYDROPONICS

When talking about hydroponics, there are all kinds of methods and systems that we can discuss. There are elaborate setups and also simple hydroponic systems that can produce some primo pot. Your choice will basically depend on your knowledge, time and the money you're willing to spend on the project. In this section, we'll introduce you to some of the basics of hydroponic growing.

Two of the most crucial things you need to know about hydroponics is that it's all about your reservoir and the plants' feeding cycle. These two areas are emphasized because, without a wellbalanced reservoir that is on a proper feeding cycle designed for that particular system, your plants will never thrive and will produce only gangly, unhealthy buds.

Most hydroponic systems operate at a pH balance of somewhere between 5.5 and 6.2. Each system and plant varies, but look for signs on your plants (such as the leaf tips twisting) to tell you what they like (or don't like). Nutrients and temperature will alter the water's pH level as well. Growers should never pH the water first—always do it after adding any nutrients, and always go back and check after it's been sitting in the reservoir for about a day. Pumps create heat, so they can raise the temperature of the water, which affects the pH as well.

Another good idea is to always have two pumps in your reservoir: one that feeds the plants, and one that keeps the water stirred and mixed. The pH level goes up when the water temp increases—but most water comes out of the tap cold, so if you check the pH level of a cold glass of water right out of the tap (i.e., with nothing added to it), the pH will be lower than if you went back to that same glass of water when it was at room temp or warmer.

The temperature of the reservoir is also important: You want to keep it below 75°F. This is a problem that even experienced growers battle. If the temp rises above 75°F regularly, problems like bacteria and disease can form, killing a plant's root system. When designing a system that fits your space, make sure that the reservoir has sufficient ventilation. It may also be necessary to leave the top off, allowing any heat to rise out.

Also keep in mind that reservoirs need to be shaded from light. Extensive exposure to light can be very bad for them, because it will raise the temperature of the reservoir and turn the nutrients in the water bad. Most reservoirs are located under a table or off to the side of the room for a deepwater culture (DWC) or ebb-and-flow system.

The next thing you need to take into consideration when growing hydroponically is the feeding cycle. Depending on what type of system you choose, there may be a built-in timer that will help you run your operation. If you're using a drip system, there's a chance you're using a digital timer or a more advanced cycle timer. It's easy to find basic heavy-duty and digital timers at most local hardware stores. As for cycle timers, they can be found at most grow stores or else ordered by them. Green Air Products makes a great one that has adjustable settings.

Advanced timers like the Green Air cycle timer have two functions: an interval setting and a time





Hydroponics can create massive root systems and larger yields



setting. So, for example, if you want to feed your plants for five seconds every 15 minutes, you can set it that way; if you want to feed your plants for five minutes every hour, you can set it that way as well. These cycle timers are much more expensive than other conventional timers, but they're worth it depending on your system. (They can also be used for other items in your growroom, like air filters and CO_2 systems.) These timers come in two models, one of which has a photo sensor that allows the timer to work only when the lights are on.

This part is especially important: You should never feed your plants while the lights are off. When you're growing in soil, this usually isn't a problem, because you typically work on the plants while the lights are on. But with hydroponic systems, there is usually some sort of timer setup to feed the plants on a daily basis. Your plants should always get their first feeding of the day when the lights are just coming on, and then periodic feedings throughout the day while they're still on, whether your plants are in the vegetative or flowering stage.

Determining your feeding cycle is where hydroponic growing can get tricky. When the plants are smaller, they don't require feeding as oftenmaybe once a day when they're slightly bigger than clone size. Once your plants have matured and grown, you might be feeding them every two hours. The medium that you decide to use also helps determine this. If you're using rockwool blocks and slabs, you may not have to feed your plants as often; rockwool retains water very well, and it's usually contained in plastic, which doesn't allow it to "breathe" and dry out as quickly. With clay aggregate or lava rocks, the roots of the plants are exposed to a lot more air, requiring you to feed them more frequently so that their roots don't dry out.

Both mediums work very effectively, so determining which one is best for you depends on your situation. With rockwool blocks and soil, you'll have to worry about disposing of the materials at the end of a growing cycle. With the rocks, you can simply wash them in a sink or tub and they'll be ready for use in your next garden.



These 1,000-watt lamps are air-cooled using 8" flex ducting.

GROWROOM BASICS

Now that we have some of the basics down, let's consider a few examples of simple gardens. Whether you decide to go with soil or hydroponics, the setup of the room will be the same: Good air ventilation (including odor control), proper lighting, and enough electricity to power your garden are the primary starting points for an indoor grow operation.

No matter how big your growing space is, there are plenty of products on the market to suit your needs. You can buy everything from 1-gallon bags or pots to a larger Earthbox-style trough. If you're growing hydroponically, there are flood trays that start at 2' x 2' as well as larger sizes and various shapes. There are also ebb-and-flow bucket systems (a.k.a. deep-water culture or DWC) that can be customized to fit in any grow space.

Once you've decided on a system, the next thing you'll need to focus on is your lighting, which will also depend on the size of your growroom. A 600-watt light produces a 3' x 3' light footprint, while a 1,000-watt light produces a slightly larger footprint (4' x 4'). You should use these basic measurements in determining your grow space. For example, two 600-watt lights are a perfect setup for a 3' x 6' flood table, while one 1,000-watt lamp is perfect for a 5-gallon DWC system of four to six buckets.

After choosing the type of lamps, the next

step will be to figure out how to cool them and maintain the correct growroom temperature. If you're using a dedicated room inside a house for growing, normal windowmounted air conditioners will usually work. If you don't have a window that's accessible, inroom air conditioners can be a great option. These are standalone units that use 4" to 5" ducting to disperse the vented heat out of a window or into another room in the house via

ductwork and vents constructed in a shared wall or door. (Note: When determining how big an air conditioner you'll need for a given space, remember that a single 600-watt light produces 2,500 BTUs, while a 1,000-watt light emits 4,000 BTUs.) Dispersing the heat can be particularly useful in the wintertime if the grower lives in a cold climate, as the heat byproduct from the growroom can be used to heat another room in the house. such as a bedroom. This can help to offset the cost of the electricity used to power the growroom lights by allowing the home to use less power on heating.

CONTROL

The next important aspect of a growroom's setup is ventilating both the room air and the heat coming off the lamps. Most growroom lamps come with hoods that have flanges on the sides specially designed for 4", 6" or 8" ducting. This allows growers to attach the ducting and in-line fans to suck away heat produced by the bulbs and exhaust it out of the grow space. This can be done on a separate conduit circuit from the normal airexchange systems if the growroom is using two or more lamps—meaning that cooler air can be sucked in from outside the room, passed over the bulbs, and then vented right back out of the room. If a grower is running only a single lamp, however, air from within the room can be sucked in, passed over the bulb and blown out of the room—effectively cooling the bulb, removing heat from the room, and acting as a general air circulator, all in one system and using only a single fan.

As far as circulation fans go, wall-mounted fans work very well because they don't take up any floor space, which can be valuable in many growing situations. Vertical (adjustable-height) floor fans and little floor turbo fans can be purchased at just about any retail store and will work fine as well. Either way, it's important that you have fans moving the air so that it doesn't become stagnant and allow heat pockets to build up.

Lastly, odor control is often the most overlooked and difficult part of growing. Without a good odor-elimination system, grow ops can become a big problem. There are basically three ways of controlling the pungent smell that plants put off. The first option is a carbon (activatedcharcoal) filter. These work the best of all the options out there, but they can be bulky and expensive in some cases. Carbon filters come in

> various sizes and can work with just about any operation; they start about as small as a 2-liter bottle and increase in size to over 5 feet tall. (The largest models can be fairly wide and pretty heavy as well.) They also vary in the size of the ductwork that they can accommodate, with most models being capable of handling 6" to 12" ducting.

Another option for odor control is the use of ionizers. These devices neutralize the atmosphere on a molecular level and provide a workable growing space. lonizers, however, are not always the

best for your plants. When using them, try not to locate them in the same room as your plants; you should always try to place them in an adjoining room or outside the door.

The last option for odor control is the use of air fresheners. This is probably the least effective of your options, because even if you use really good ones, all they do is mix with the smell of your plants to create an odor that still smells kind of like weed. ONA is one of the leading companies for industrial-size odor deterrents; there's even a model with a fan that disperses the solvent throughout the room. In truth, it's best to use at least two of these three options in conjunction to make sure that your operation is secure.

STURDY-BUILT

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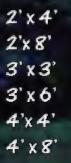
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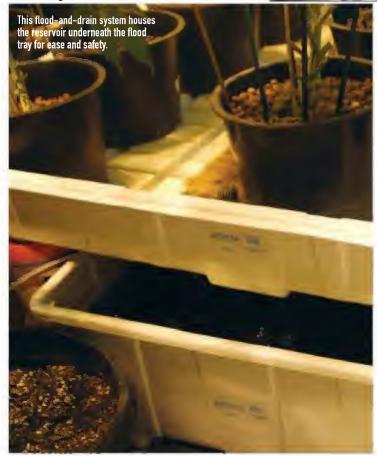


SETUP 1

For people who live in medical states and are limited to a certain number of plants, large soil containers and hydroponic bucket systems are both great options. These systems allow growers to grow larger plants that will produce a more rewarding yield.

Ebb-and-flow or DWC bucket systems come with a number of buckets that usually provide from six to 12 plant sites. These can be either 3- or 5gallon bucket pots that connect to both a main bucket (the mechanical brain of the system) and a large reservoir. The "brain" bucket has a built-in timer and outlets that control the pumps. This main bucket is hooked up to the larger reservoir that controls the rest of the buckets. Located inside the "brain" are float valves that control the level of water for all the buckets hooked up to the system. When the main bucket is flooded, all the buckets fill up to the proper height. After a set time, the "brain" bucket then empties itself using a small pump that is located inside and will drain the water out of it as well as the rest of the buckets in the system.

However, there is usually about an inch of water that remains in the bottom of each bucket. This actually helps out when the plants become bigger and their roots stretch down through the holes in their net pots sitting at the top of the buckets (hence the name: deep-water culture). If, for some reason, your pumps fail or you lose electricity, the small amount of water that remains in the buckets can feed the plants for as much as a day or two—and when working with hydroponics, that extra margin can be crucial.



SETUP 2

For growers who aren't concerned about plant limits, using flood tables is probably the best bet. Growing a bigger number of small plants is easier than maintaining and growing large ones. For systems like these, smaller plastic containers filled with hydroton pebbles (hardened expanded clay) work great. The larger 6" x 6" rockwool blocks also work well in table systems.

Both of these options work more efficiently because there is no need to use extra rockwool slabs underneath for the roots to grow into. If you decide to grow larger plants on a flood table (though this is not recommended, because the smaller containers and rockwool cubes will not be able to provide adequate support for these plants), growers will need to use a trellis or similar system for added support. If a grower does decide to grow larger plants in a "sea of green" (SOG) format, they should use rockwool slabs at the very least, because these slabs allow the plants to form a larger root base that will help to support them as well as increase their nutrient uptake.

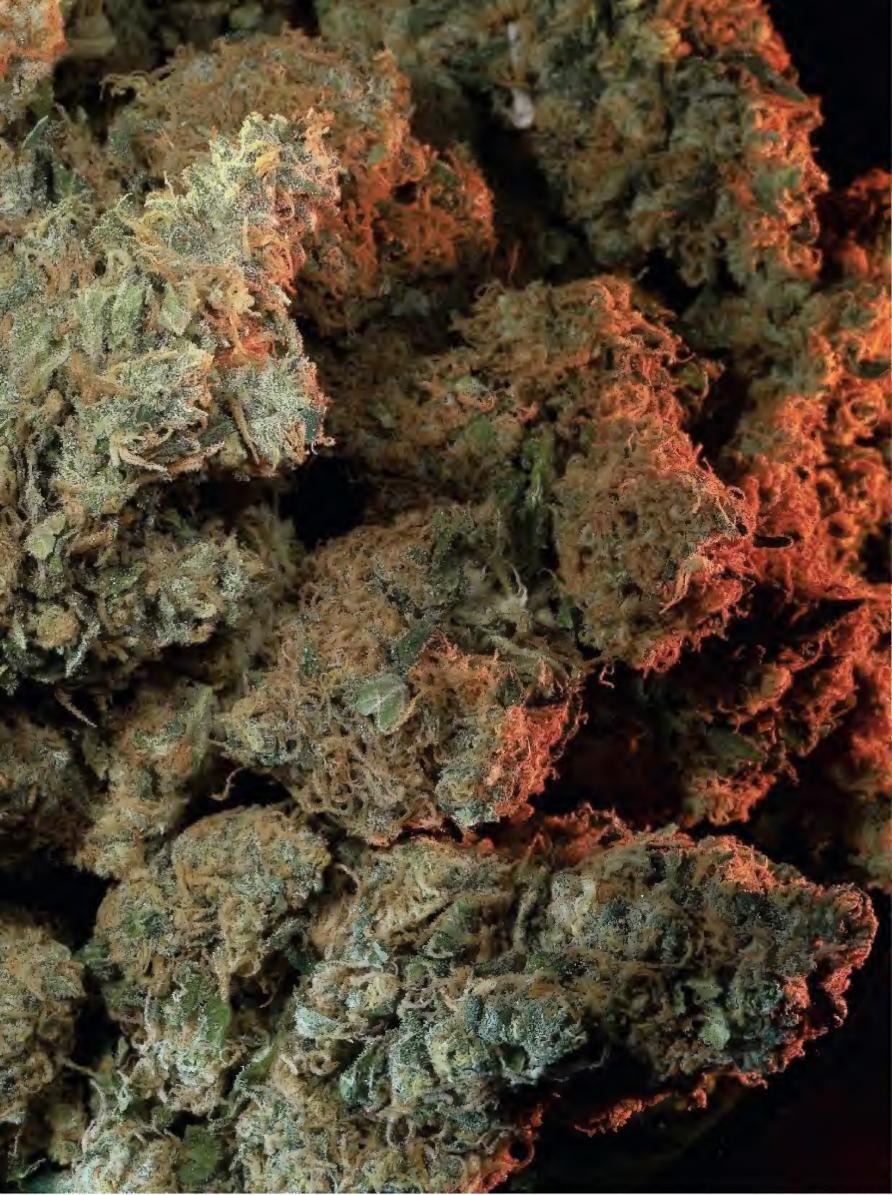
When using a flood table, you should always place the reservoir underneath it. This helps when flooding and draining the table, making these transitions a lot smoother. It also comes in handy if, for some reason, any cracks form or the tray breaks, as you have a better chance of the water leaking back into your reservoir and not on the floor.

is DWC bucket syst r growing large pla

For these setups, you can usually use an industrial timer with 15-minute intervals, which can be purchased at most hardware stores or grow shops. When you're using a system like this, you can flood the table for 15 minutes every three to four hours when the lights are running. Growers may choose to feed their plants at six-hour intervals when they're smaller and still in the vegetative and early-bloom stages. The most important thing is that you pay attention to your plants and let them tell you if the feeding cycle needs to be increased or decreased. As with growing in soil, you don't want to overfeed your plants or the roots won't form as quickly as they should.

Sour Fripes







SWITCH

SWITCH TO GLASS

Still using plastic baggies or containers? It's time to SWITCH! High Times declares, "Glass is the only thing you want to use for any kind of long term storage of quality cannabis... try 420 Jars for the best in pot storage."

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STRAIN

The Earthbox allows for flexible feeding and soil mediums.

Even outdoors, soil in large containers can be just as good or better than in the ground.



EASY WAYS TO GET STARTED





SETUP 3

When asked the best way to grow in soil, the common answer from advanced growers who like to keep it simple is "Earthboxes." These grow containers can really make growing as simple as filling the boxes with the soil (or soilless mix) of your choice and then feeding your plants every few days.

The boxes come with a reservoir attached at the bottom that holds 2 to 3 gallons of water or nutrient solution. Placing a small container beneath them when filling the boxes is a good idea: These units have a built-in overflow hole drilled into them to help eliminate overfeeding.

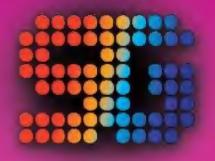
Another benefit of growing in larger soil containers is the ability to stake your plants or add various types of support. Unfortunately, when growing with hydro, you don't always have the option to stake your plants, because there's nothing to drive the stakes into. With Earthboxes, you can really grow a plant to its fullest potential by utilizing bamboo stakes or string netting. Spreading the branches out allows the lower parts of a plant to receive more light and produce more nuggets, thereby increasing yields.

There is also a Velcro tape that you can purchase at most garden stores to help stake plants up. Velcro tape is preferred because it's very easy to work with. Growers can also drill holes in the sides of the boxes and pull the branches apart, undoing the tape and reapplying it as the plant grows. The tape is made of pretty durable material, so you can reuse it in more than one garden.

And that's about it. Hopefully, with these helpful hints on a few easy gardens, we'll have more and more growers popping up all over the place. And with more growers and cultivators out there comes more private genetic breeding and the continued progress of this wonderful plant that we all love to enjoy. *



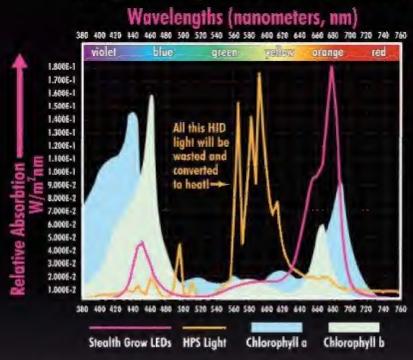
Large containers equal larger root structures, larger plants and larger yields.



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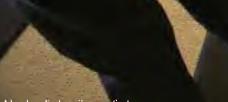


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A legal medical marijuana patient carefully considers the offerings at Oakland's Harborside Health Center

DEFENDING DISPENSARIES

The media likes to portray California's medical-marijuana dispensaries as some kind of out-of-control 'Wild West,' but our insider's look reveals that America's \$2-trillion-per-year health-care industry could learn an awful lot from the best medical-cannabis collectives when it comes to putting patients before profits. By David Bienenstock

One man from Illinois lost his coverage in the middle of chemotherapy because his insurer found that he hadn't reported gallstones that he didn't even know about. They delayed his treatment, and he died because of it. Another woman from Texas was about to get a double mastectomy when her insurance company canceled her policy because she forgot to declare a case of acne That is heart-breaking, it is wrong, and no one should be treated that way in the United States of America. —**President Barack Obama, speaking to a joint session of Congress**

his article is about *Cannabis sativa*, not President Obama, so let's all set aside our partisan politics for a moment. What makes the above quote relevant isn't who's speaking so much as what's being said. On live national television, the President of the United States acknowledged that America's so-called "health-care" industry hires roomfuls of people to figure out how to screw you out of services you've already paid for, based on obviously irrelevant technicalities, even if the consequence is your own death.

At least, that's what happens if you've *got* insurance, never mind if you don't. And yet, the men and women who run these companies and make these decisions earn millions of dollars every year and get treated like pillars of society. Through it all, they comfort themselves into a good night's sleep with a simple bedtime reminder that, as CEOs, they've simply got to do whatever's going to make the most money for their shareholders. In our capitalist system, anything else would be irresponsible. Hell, even Obama let them off the hook in the very same speech. "Insurance executives don't do this because they're bad people," he said, referring to the business practices sometimes known as "murder by spreadsheet." "They do it because it's profitable."

Profit—apparently a motive so sacred that it's worth letting a man die in the middle of his cancer treatments. Which is ironic, of course, because San Francisco's legendary Brownie Mary—and so many medical-marijuana activists like her—thought it was worth risking their own freedom in order to supply a miraculously healing herb to cancer and AIDS patients with nowhere else to turn.

"My kids need this, and I'm ready to go to jail for my principles," hospital volunteer and medicated-dessert heroine Mary Jane Rathburn once said. "I'm not going to cut any deals If I go to jail, I go to jail."

Brownie Mary was twice arrested for supplying completely free medicine to the sick and dying, made from ingredients donated by kindhearted cannabis cultivators from all around the Golden State. Nurtured by this example of propaganda by the deed, the early seeds of the modern medical-marijuana movement began to take root, and Brownie Mary would go on to help pass California's groundbreaking Proposition 215 voter initiative and open the legendary SF Cannabis Buyers Club, America's first openly operating medical-cannabis dispensary.

But even after passage of Prop. 215 in 1996 made California the first state to legalize medical marijuana, many more activists would be arrested, incarcerated, sent underground or exiled for the same crime of



'We thought every day was our last day. Raids were happening all around us, and we lived under constant threat of being closed by the DEA. '

compassion. So let us never forget that, long before medical marijuana ever became a "growth industry," it was an act of civil disobedience that often brought with it dire consequences. And even today, in this supposedly more enlightened era, where the US Justice Department has promised to respect state law, we still see raids and arrests at the hands of the federal government that leave medical-cannabis providers in hot water and their patients "not high and dry."

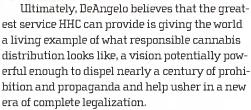
Debby Goldsberry, founder of the Berkeley Patients Group, has lived with that threat long enough to celebrate the 10th anniversary of her dispensary on October 31, 2009—a date officially designated "Berkeley Patients Group Day" by the City Council. Asked if she ever expected such a high honor from the local government, Goldsberry smiles wryly and shakes her head.

"We thought every day was our last day," she explains regarding the dispensary's early years. "Raids were happening all around us, and we lived under constant threat of being closed by the DEA. Fortunately, the city of Berkeley has been extremely supportive."

Walk into the Berkeley Patients Group today, and once you make it past the friendly (but professional) security staff and verify that you're a

legally sanctioned medical-marijuana patient, you'll enter an inner realm where the long-held dream of "safe and legal access" to medical marijuana has become a reality. In addition to a wide variety of cannabis strains and concentrates, plus edibles, seeds, clones and extracts, the BPG also accommodates onsite medication and provides members with free services, including therapeutic massage, acupuncture, legal assistance and tutoring. They also offer financial support to both community programs like the local library, youth center, school-lunch program, homeless outreach and YMCA, and the national marijuana-law reform movement, including Americans for Safe Access, Students for Sensible Drug Policy and BPG's own grassroots activism.

Less than 10 miles to the south, another longtime marijuana activist, Steve DeAngelo, describes the Harborside Health Center in Oakland as his "life's work," a showplace dispensary capable of serving as a model for the rest of nation to emulate as medical marijuana continues to spread, state by state. Spacious, professional and welcoming, HHC offers a plethora of cannabis medicine, all of which is lab-tested for potency (THC, CBD, and CBN) and impurities (molds, bacteria, chemical residues), plus a diverse selection of clones and a full range of free services that includes weekly classes on how to grow your own medicine—despite the rather obvious conflict of interest with its own core business. And, oh yeah, HHC paid \$3 million in taxes last year, not to mention providing over 100 truly green (and much-needed) jobs in cashstrapped California.

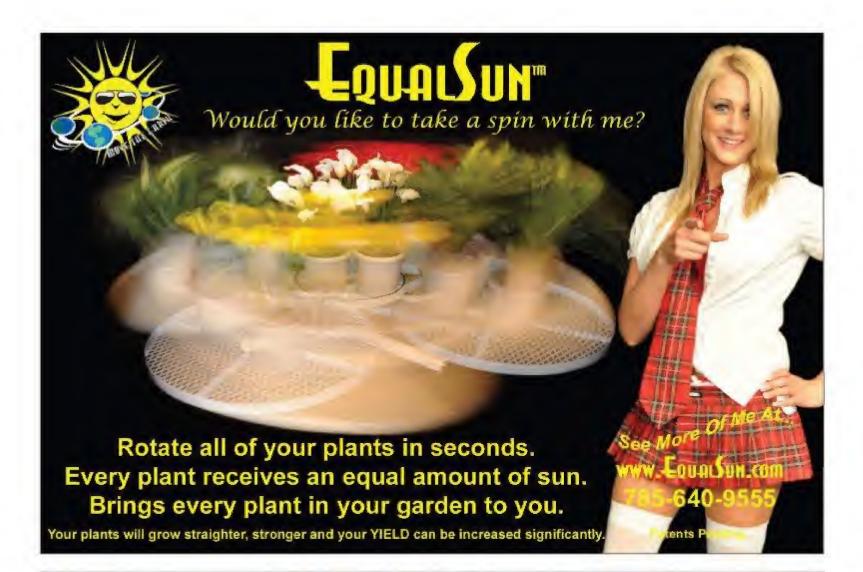


"We need to demonstrate to our fellow citizens that we're worthy of their trust," DeAngelo says. "We must prove to them that cannabis can be distributed in a safe, seemly manner."

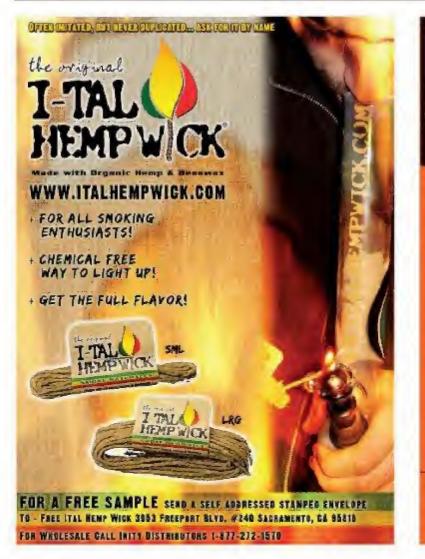








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To a certain mind-set, marijuana–medical or otherwise–will only become respectable when the investor class finds a way to cash in.

Unfortunately, the vast majority of Americans have never set foot in a medicalcannabis dispensary and consequently rely on the media for information about them. And so it was concerns over the "Wild West" of California—flames fanned by near-constant repeats of *Marijuana Inc.* on CNBC—that prompted New Jersey lawmakers to severely limit the ailments eligible for a doctor's recommendation when they passed the nation's newest medical-marijuana law in January.

The New Jersey Compassionate Use Medical Marijuana Act, which took effect on August 1, also prevents those patients who do qualify from any form of self-cultivation, making it the first medical state with such a ban, one that effectively forces patients to buy their medicine from a state-licensed "alternative treatment center." The first six such dispensaries, spread across the state, will operate as nonprofits, but the law specifically allows for future dispensaries to turn a profit—another dubious first for New Jersey.

"I think we all see what's happened in California," New Jersey's governor-elect, Chris Christie, commented just before the bill was signed into law by his lame-duck predecessor, Jon Corzine. "It's gotten completely out of control."

Naturally, if Mr. Christie, now the governor, finds a system where chronically ill patients can grow or buy a medicinal plant without fear of arrest to be "completely out of control," well then, he must be pretty deeply fucking troubled by the blatant abuses of the health-insurance industry, which, as noted earlier, would rather see you die on the operating table than pay what they owe for your surgery.

Then again, don't hold your breath waiting for those guys to be held accountable. It's a double standard so blatant you can't even wrap your mind around it, but at the end of the day, cutthroat health-insurance executives earn society's respect not for healing, or even helping, but for making profits, while medical-cannabis dispensary workers who risk arrest every day to bring ill patients what their doctors recommend face society's reproach for "making money selling drugs."

To a certain mind-set, marijuana—medical or otherwise—will only become respectable when the investor class finds a way to cash in. But while California currently permits the lawful cultivation, transportation and sale of cannabis for medical purposes, and employees can earn a "reasonable salary" for performing these tasks, *all* such enterprises must be organized as nonprofit entities. Which means that for-profit corporations, like those that run our health-insurance system, need not apply.

Meanwhile, what Governor Christie's comment makes obvious is that we all *don't* see what's happened in California. It's certainly



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doubtful that Christie's familiar with the Revolutionary Love Project, a joint effort of the Cannabis Buyers Club of Berkeley, the Capitol Wellness Collective and the Tahoe Wellness Collective that's brought medical-cannabis patients and volunteers together to create the newly opened Freedom House in Sacramento.

"We have taken a house that was destroyed and abandoned by the homeless and drug abusers and are turning it into a community center," explains volunteer coordinator Courtney Sheats. "Together, we can begin to meet the needs of those who suffer most in the community, and help to address the issues of poverty, education, health and humanity."

At the 99 High Art Collective in Venice, the founder, Yvonne, was inspired to open a combination medical-marijuana dispensary and art gallery for more personal reasons.

"When my mother was diagnosed with cancer, I knew it was time to share with her everything I knew about marijuana. So I decided to create a place where my mother and all medical marijuana patients could feel safe, comfortable and joyful acquiring their medicine," Yvonne explains. "I never understood why healing had to be done in a sterile environment, devoid of art, love, music, and good vibes. We believe that there is an art to healing and healing is an art—to us, they are inseparable."

Again, the focus is not just on cannabis, but community, compassion and creativity as well—three powerfully healing forces that the modern health-care industry not only fails to foster, but wouldn't even recognize unless you figured out a way to slap a price tag on them. And speaking of price tags, that brings us to the flip side of the dispensary argument: If the prohibition tax on supply keeps slowly dissipating, how come top-grade bud at the best dispensaries still costs up to \$75 an eighth? Where's the compassion in that? Well, first of all, before you declare total victory in the fight for medical marijuana, even in "out of control" California, better talk to Jeff Joseph about Organica, his all-organic medical dispensary in West LA that's been consistently harassed over the past two years by the DEA, the Los Angeles County Sheriff's Department and the LAPD, including raids and arrests that occurred long after Obama officially vowed to respect state law when it comes to medical marijuana.

Art Gallery

The fact is, until federal law changes, dispensaries remain technically illegal, and those who operate them still run risks you'd rather not think about. They also have to cover overhead that includes rent and utilities, payroll, taxes, legal compliance, packaging, security, insurance, quality control, member services, and other costs not traditionally associated with cannabis distribution.

Meanwhile, California law allows medicalmarijuana patients to grow their own medicine, arrange for a caregiver to grow it for them, or join a nonprofit cultivation collective that cuts out the middleman entirely. With all these options available, California patients who choose to visit a dispensary do so because it's convenient and safe; because there's a large selection of well-sourced, high-quality medicine sold on an open exchange at an agreed-upon rate; and because they know they'll be treated like patients instead of criminals. It's not a perfect system—but when compared to the corporate health-care alternative, the difference is as clear as life and death.

So the next time you hear some politician claiming to support medical marijuana as long as their state doesn't become "the next California," remember to ask them why the hell not—and whether they'd rather break bread with a medical-marijuana provider or a health-insurance CEO. ¥



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D.L. Hughley TRITH IS FUNNY

INTERVIEW AND PHOTOS BY DAN SKYE

D.L. Hughley arrives for his interview all smiles. He's clearly having a ball. A year ago, he started his new gig as a morning on-air personality for KISS-FM, one of the premier stations competing for listeners in the fiercely competitive New York City radio market. As he points out, "I get paid for speaking about what's on my mind. Why wouldn't I be having fun?"

A conversation with Hughley is peppered with sarcastic question marks, incredulous facial expressions, and blunt commentary that causes his listeners to explode in laughter. In fact, that's how he's always made his living: He's been a top standup comic for over 20 years and was one of *The Original Kings of Comedy*-along with Steve Harvey, Bernie Mac and Cedric the Entertainer-who took the African-American experience and strip-mined it for hilarity. He was also the co-creator and star of the long-running sitcom *The Hughleys*.

Even so, Hughley's search for humor-and, ultimately, truth-is hardly relegated to the African-American experience alone. His breadth of knowledge on the key political issues of the day is impressive, and HIGH TIMES readers will note that his understanding of the Drug War is equally acute.

When did you first realize that you were funny, that you could make people laugh? I never realized that. I never *realized* that I was funny.

But you're aware that you have a certain knack for expressing things that makes people laugh? I do know that—it would be foolish to say that I didn't. But I never think of it in terms of being "funny." The more clear I am about something, the funnier the truth becomes. Like on the radio today-this health-care debate is raging, and people were saying that Obama is like Hitler. Now, if I'm not mistaken—and I am not a history buff, but as far as I know—Hitler wanted to rule the world and destroy people he didn't like: Jews, Gypsies, cripples. Obama is trying to give people health care! Now there is a difference between putting people in a gas chamber and a pap smear, between concentration camps and a rectal exam.

These things are funny to me because they are absurd. The more weighty the mistakes, the more

funny they are. There **p**robably hasn't been a time like this since the 1960s where so **m**uch was at stake.

How do you view the phenomenon of *The Original Kings of Comedy*?

It changed everything for me. You don't want to be the college athlete who talks about himself, but every time you hear your school name, you are filled with pride. But it's not something you talk about. You are just one of the alumni.

You were a huge supporter of Obama, but Dr. Boyce Watkins has sniped that you turned your CNN show, D.L. Hughley Breaks the News, into a "modern-day minstrel show." What was your reaction to that?

My reaction was no reaction. You ever heard someone describe you? It's either familiar to you, or it is totally unfamiliar to you. It doesn't mean that it isn't that person's reality; it *is* reality to that person. But I am my own Inspector No. 9 ... you know, on underwear and pillows, where it says "Inspector No. 9"? It has to pass that test, the same as when / say something—if I'm not comfortable with it, then I won't say it.

How would you grade the Obama presidency so far?

I would give it a C. But I'm ultimately very happy that health-care reform passed ... but not the way it passed, with Democratic support only. There was no Republican support. You have hope that you could gain some Republican support, but none came. So you could've passed the bill you wanted and still made the same people angry. It could've happened a year ago.

Some black Congressmen were actually called "niggers" by angry crowds as they arrived on Capitol Hill for the debate. Any perspectives on that?

I don't understand why they don't get it—you call people a "nigger" or a "faggot" because they want people to be able to go to the doctor? It seems particularly disingenuous. We can go to war—we always have money for war. We have that money, and nobody questions it at all. So to take lives, we have money. But to save them, we are not as willing.

Everybody has health care except for us. I don't understand it, but it's funny. You have John McCain, Rush Limbaugh, Vice President Cheney all of whom would be dead if they didn't have health care.

Is radio just a continuation of your comedy career?

It is, and it is so funny what *is* funny. Take Gabourey Sidibe, the actress who gave that great performance in *Precious*. She looks like that dude from *The Blind Side*—but *Vogue* didn't want her on the cover because she was too fat. New York City Mayor Mike Bloomberg wants to monitor the salt 'I remember going onstage and I did 30 minutes. I was supposed to do an hour. The owner came to me and said, "Motherfucker, if you weren't so funny, I'd take my money back."

in your food at restaurants. Restaurants already disclose how many grams of fat are in dishes. The president's wife, Michelle Obama, is involved in an anti-obesity campaign. But people get upset when *Vogue* won't glorify obesity. It doesn't make sense, but it *is* hilarious. The only way I can cut through all the bullshit is to pick up the newspaper and pick things out that are just hilarious.

What was your take on the Tiger Woods scandal? Let's see, he had sex with 14 white women—so all of a sudden, he needs diversity training? A highpowered athlete, a wealthy athlete, having sex with 14 women! By the way, nobody ever talks about the women he turned down. The idea that a guy who excels in sports—an alpha male—likes to fuck! We're more angry at him than we are at John Edwards.

Everybody knows that Martin Luther King was a great man; he loved women. JFK changed the world. The difference between them and Tiger was—I don't know ... TMZ, the media. Tiger just said, "If you think you can sell my image, I am not going to do anything on the contrary." He remained private. His mistake was that he let the media create an image of him. And all of the dudes who liked Tiger Woods are still going to like him no matter what. I don't think they'll say, "I'm not going to buy this nine iron because it's going to make me fuck more. Better not drink Gatorade, either!"

Okay, let's talk about marijuana. You've got kids who are all legal adults. How did you deal with the issue of smoking pot?

I told them that I'd rather them do it around me than do it around ... listen, what's more harmful? If they had a glass of wine, it would be more harmful, physically, than smoking. The one thing I'm proud about is that I certainly don't encourage them into doing anything. But I think that pot's been *demystified*, not *romanticized*.

Is pot useful in creating comedy?

I will tell you what it does do—I never *perform* with it. But if I want to write, I am never clearer than when I'm just a little higher. It unlocks the key; it really clears up things for me.



The one time I did perform high, I remember going onstage and I did 30 minutes. I was supposed to do an hour. The owner came to me and said, "Motherfucker, if you weren't so funny, I'd take my money back"—because I thought I had been out there forever. No time perception. I was like, "Man, I've been up here for *three hours*!"

Do some comedians believe they're funnier when high?

I never heard anybody make that kind of assessment. I've heard them talk that way about liquor because liquor makes you say dumb shit.

Have you ever had any negative experiences with marijuana?

I was in a dispensary. I had called in my order. I went to go pick it up. I talked to the people about

my medication. Then I saw this brownie. I thought, "I've been getting high my whole life"—so I ate the brownie. Big mistake! I ate the whole thing. About an hour later, I was like, "I'm dying!" [laughing] You know, I could *feel* myself *dying*.

Pot food affects everybody differently.

That's exactly what *he* said! I have been getting high my whole life—that was not *high*! It was so funny. I called my kids. I was like, "Your father's dying—I ate too much weed!" I learned a lot from that. My kids even got me a brownie for Christmas.

You've always made plenty of marijuana jokes. Do you catch flak for that?

I am so tired of the way it's demonized. Even on the radio station, they say that I shouldn't be so open. But if I said I was a drunk, I think I could



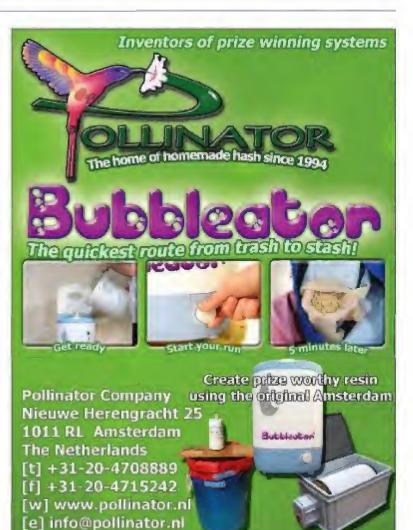


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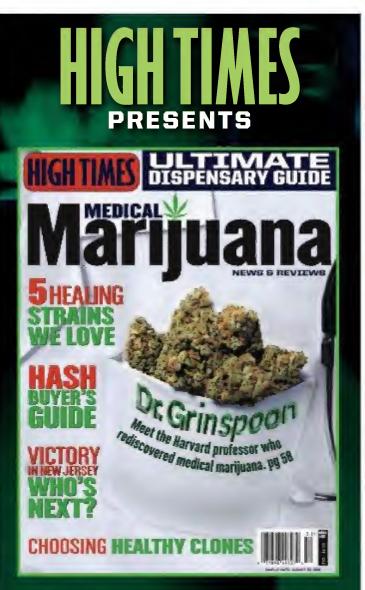
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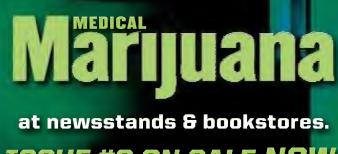
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'Let me get this straight-they're going to be shocked that a black man that grew up in LA, and who does showbiz for a living, smokes weed?'

probably be Foster Brooks for a new generation. [The late Foster Brooks was a comedian whose act relied solely on his impersonation of a drunk.] Even my road manager is concerned that people are going to know that I smoke weed. And I tell him, "Let me get this straight they're going to be shocked that a black man that grew up in LA, and who does showbiz for a living, smokes weed?"

Do you use cannabis regularly? I won't say I need it to get by—but regular enough so that if a day has a 'y' in it, I use it. But "every day" is *every day*, regardless of what I am using it for on that particular day. Before, it was kind of to be rebellious. I think it goes back to when you're younger and you do shit because you think it's cool. Then, after a while, it's your friend. After a while, I don't think it's any different than putting on your glasses.

I do hate all the shit you do to be comfortable with it. Like when I'm in New York and I smoke, my neighbor knocks on the door and says, "I smell your marijuana!"

You know the one thing I see about marijuana in New York City? It seems more rebellious. Only certain people do it. In California, it's very much more part of the culture. That's what's so funny. I live here part of the time, and it is so different from the LA scene.

What's your take on Northern California?

Northern California wants to be the East Coast. They do! They're very liberal. They're hippies—they get on their bikes to go and get the grease for their cars. You're riding with some dude, and his car smells like In-N-Out French fries. I'm serious, man everything is organic.

So where do you think this whole wave of marijuana-law reform is headed?

These are dire economic times, so a number of things are being re-evaluated. If you think of the time the court spends on prosecuting these things, the time police spend on arrests, court fees, incarceration costs Did you know that in California, every prisoner has to have \$8,800 a year in medical care—and California has the largest prison population in the country! You don't have that; / don't even have that. And 97 percent of them are in prison for drugs. I think these times are a blessing in disguise, because it makes us re-evaluate the ways we do things. 🖗







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About Pyrethium and Spinosad

Although pyrethium is indeed an organic pest-control chemical insofar as it's not particularly toxic to humans, many growers have noticed that it can burn some particular strains of cannabis. For example, Northern Lights and Mother's Finest don't appear to burn easily, but the Skywalker strain does. This problem can be mitigated by using pyrethium foggers instead of direct application. One technique is to point a fan at a tray of clones and lightly mist the pyrethium into the fan for long-term systemic protection. If direct application is necessary, rinse it off immediately to avoid plant burn. Since pyrethium is largely indiscriminate in its slaughter of insects, it should not be used in conjunction with any beneficial insects.

Spinosad is a relatively new class of organic insecticide that derives from naturally occurring soil-dwelling bacteria. It appears to kill susceptible species like thrips by causing rapid excitation of the insects' nervous system, but it doesn't appear to work on sucking insects like spider mites because it must be ingested in order to work. This has led some biologists to experiment with applying spinosad to the root zone in order to control mites. Studies suggest that the technique may actually work for rockwool substrates. Be aware that both spinosad and highly concentrated doses of neem can destroy bee colonies (and surely other beneficial insects as well) if applied indiscriminately outdoors.



Lessons Learned

Ten or 15 years ago, growers could have been forgiven for thinking that they might one day have to move into a spider-mite tent when their Avid no longer worked. As cannabis grow information has proliferated in books and on the Internet, today's growers understand their pest threats and treat-ment options far better than they did back then.

By studying the life cycles and features of the primary cannabis pests, growers can replace toxic pesticides with natural substitutes. And by timing the release of beneficial insects with the application of organic chemical treatments, we can create artificial ecosystems within our indoor grows. After all, it was the artificial-grow environment that created the runaway pest problems to begin with. Nature's tendency, by contrast, is a balanced ecosystem where most bugs never get a chance to explode out of control. Clearly, nobody can blame the bugs for wanting to munch on our sugary

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WEED POSTER (left)

I am a longtime fan of your magazine, I took a picture of this Kush bud, pipe and joint. Everyone loved the picture and suggested I submit it to my favorite magazine. I was thinking about it but everyone kept saying I SHOULD! I hope you and the HIGH TIMES readers appreciate the picture as my friends did.—Jeffrey DuPree, Mason Lee Photography



MARTY'S MEDS (above) Here's a pic from a 62-year-old cannabis crusader in California. Thanks for all the advice! —Marijuana Marty

WHO NEEDS A NUG? (lower left)

This is a creation of mine: White Skunk x Purple Kush. I call it Wurple! Much respect! —Nowstopwhining

LEGAL LOVE lower right)

This is a pic from my last crop of legal medication. The plant is called Forbidden Fruit, also known as Le Fruit Defendu. All my plants are grown in soil. Hope you guys like them.—Grecco







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"... Right off the bat, it was easy to see that my clones grew faster, they were greener and stronger, and they were ready for flowering about two weeks earlier.

"My bloom cycle was more productive ... I used less fertilizer overall ... and got better growth and yield. I guess I learned to keep an open mind and to always look for the best way to do something, not just the way you're used to. Now, Grow-Micro-Bloom (GMB) is the solid foundation for my 20-light garden!"

Why Big-Time Growers Of High-Value Plants Demand A Superior 3-Part Formula

While a premium 2-part formula like our Connoisseur is actually the most effective way to precisely dial in the exact nutrients and ratios your plants need ... many growers enjoy the simplicity of an easy-mixing 3-part formula ... and they still want the most effective formula possible.

That's why they demand only the best when it comes to:

- Using 3-part formulas specifically designed for their high-value plants ...
- Using formulas with the absolute best and most potent nutrients and ratios ...
- Using the most advanced, state-of-the-art, "carrier molecules" to ensure their plants get the maximum amount of nutrients in the least amount of time ...
- Using the formulas which have been proven, in multiple scientific studies, to get more color, more aroma, more size, and more potency from our plants ...
- And using formulas which are not only highly-advanced and easily customizable, but easy to mix and use ...

In fact, Grand Master Growers have found Grow-Micro-Bloom (GMB) from Advanced Nutrients is the only 3-part formula on the market which meets all these criteria. Here's why the others don't measure up ...

The 3 Biggest Problems With Other 3-Part Formulas

If you've been growing for any amount of time, these three problems

will be very familiar to you:

Big Problem #1: Most 3-part formulas are NOT made for the types of plants we grow because you'll discover they're about the same as the little \$3.50 bottles of granulated fertilizers the average homeowner uses on their garden flowers. They're made in generic ways with generic ingredients.

Big Problem #2: Is directly related to the fact other 3-part formulas are not made for high-value plants like ours ... and that is ... they're hard to mix and monitor and are the direct cause of many of your plant growing problems.

Many include artificial dyes of an unknown amount and molecular

structure which could harm your plants (instead of harmless, organic dyes) ... they don't have the right PPM or pH ... they burn roots ... they don't feed plants the right nutrients leading to slow growth and reduced harvests ... and they may contribute to other growing problems. The bottom line? They basically wreck crops and waste your garden's potential!

Big Problem #3: If you're using other, different, formulas ... even if ... you do manage to get a formula with nutrients which are good for you plants (which, as you've seen, most don't have) ... then ... you're probably still wasting most of those nutrients because those formulas don't have carrier molecules to drive those nutrients straight into your plants faster and more efficiently. This is actually a big problem because most of your nutrients are not getting into our plants which wastes your money ... and ... this causes longer crop cycles which wastes your time. But it doesn't need to be this way ...

Here's How GROW-MICRO-BLOOM (GMB) Is Actually 5-Products-In-One!

The fact of the matter is: GMB offers you more value for your money than any other 3-part formula on the market and it's simply because you get 5-products-in-one with this formulation.

Here's how ...

- GMB now contains Wet Betty which is an organic surfactant that lowers the surface tension of your water, allowing easier spreading and uptake of nutrients into your plants.
- The second ingredient is humic acid which provides natural carrier compounds that transport nutrients and vitamins into your plants more efficiently, so they grow faster and have stronger cellular processes.
- The third ingredient is fulvic acid which gives you quicker nutrient absorption, nutrient transport, and more cellular metabolism.
 Together, these two acids work synergistically to maximize the time your plants spend in bloom.
- The fourth ingredient in GMB is the highly-potent bud-potentiating nutrients themselves that feed your plants exactly what they need for fast, high-powered growth and impressive finishing harvests.
- And the fifth and final ingredient is the specialized "chelates" we've already talked about that get these highpowered nutrients into your plants as fast and as efficiently as possible!

COMPANY FOUNDERS' NO-RISK, 100% MONEY BACK GUARANTEE: If for any reason you're not absolutely delighted, we'll refund all your money back it's that simple.





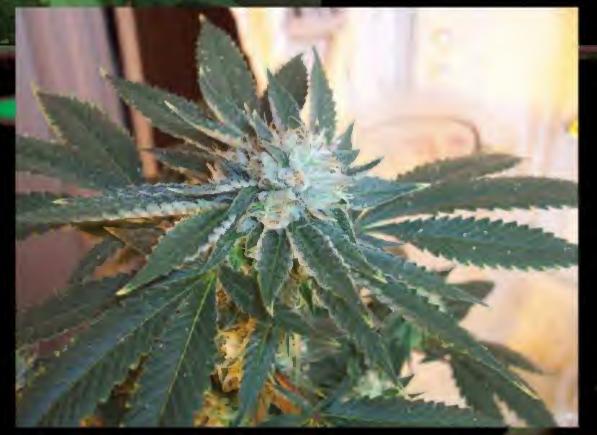


ALWAYS YIELD (above) Here's a pic of my harvest. I hope you all enjoy it as much as I do! Thanks!—Chris

FLUORO BUREAU (above)

This is my stocky White Widow, three weeks into flowering under fluorescent lighting. —jon

A NEW BREED (right) Hello, HIGH TIMES! Y'all rock! I've been crossing and breeding and came out with some amazing results! Here's a shot for you to enjoy! —Mauvefarmer



AND CAN BEREE	VISIT OUR LOGATION FOR HASSLE FRHE SHOPPING SEG-UNIT A AVELUE DU PAR HOITHEAL, OUEBER, GANADA HZV-4HA MONDAY - SATURDAY HOAM - 6PM SUNDAY 12PM - 4;20PM	seve a receive a Brice Cotoringue Price Cotoringue Price Cotoringue Enternational INC.	ED BANK
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SHRED THE CHEESE

This is my nug of Big Buddha Cheese. It's got the perfect high, not too heady and not too sleepy ... just right! —Swiftmud

GROWING WITH GRANDAD

This is some Granddaddy Purple, all-organic and grown under a 400-watt HPS and 68-watt CFL. Grow Yer Own Man says, "Thanks, HIGH TIMES!" — Dan the Urban Garden Man

Pix of the Crop is reader-driven. Your submissions make all the stoners of the world dream of kind nugs. Send pictures (no Polaroids), tips, questions and stories to: HIGH TIMES, 419 Park Avenue South, 16th floor, New York, NY 10016. Digital photos can be e-mailed to mailbag@hightimes.com and must be hi-res for publication. Remember, by submitting photograph(s) you thereby grant permission to the publisher to reprint photograph(s) in HIGH TIMES, as well as in any other Trans-High Corp. publication.

NSI BLOOM

The Bodybuilding Secret That Gives Your Plants **Bigger, More Potent Buds!**

In the sport of bodybuilding, athletes supplement with amino acids to help fuel muscle growth because they're the essential "building blocks" on which protein growth is based.

But your plants can benefit from the addition of amino acids too! That's why the 4th ingredient in this one of a kind 2-part base nutrient is amino acids. These amino acids are the building blocks of proteins that fuel metabolic pathways for enhanced floral and essential oil production.

Ingredient #5 is, of course, the actual plant-maximizing nutrients themselves. But, you should know

How To Get The Optimal Amounts of **Micro and Macro Nutrients For a Bigger Yield**

To ensure your plants get the most out of the nutrients you're feeding them, the scientists rely on chelation to enhance absorption. In fact, this 5-in-1 formula contains the optimum number of chelated macronutrients that your plants need for faster growth and bigger blooms.

In addition, the following micronutrients are 100% chelated; iron, zinc, manganese, molybdenum, copper, boron and cobalt ... which of course means ... your plants more easily absorb and use these nutrients-giving you bigger buds and more yield from the same bloom time!

How This New Plant Growing Technology Maximizes Your Bloom Phase So You Get A Huge Harvest You Can Be Proud Of

This team of respected scientists and their graduate assistants worked around the clock to ensure this nutrient worked unlike any other:

- You get earlier flowering with more budding sites ...
- You get a shorter internode length and more buds per stem
- You get thicker diameter flowers with better floral structure because the powerful, pure ingredients feed your plants more effectively ...,
- You get more time in peak bloom because your plants flower earlier giving you more weight, more aroma, more color and more potency

If they had stopped there, you would still have seen an impressive increase in your total yield.

However, in developing this advanced 2-part bloom fertilizer - Sensibloom - this team of scientists went the extra mile!

The Ideal Ratios, Already Dialed In For You

It's a known fact that the further you move away from feeding your plants their ideal nutrient ratios, potency and yield rapidly deteriorate.

You see, your plants use a small amount of phosphorus during flowering, but what they really love to use is nitrogen and potassium. The scientists at Advanced Nutrients discovered this only after taking thousands of weekly tissue samples from buds, stems, leaves and roots of many varieties using gas chromatography analysis throughout all phases of plant growth.

Other nutrient companies are over-using phosphoras in hydroponic bloom fertilizers. And to compound problems, they use high levels of ingredients like mono ammonium phosphate (MAP) or diammonium phosphate (DAP). These substances are what give some plants their harsh taste.

But the good news is: with Sensibloom you're guaranteed to have the correct nutrient ratios for your plants!

COMPANY FOUNDERS' NO-RISK, 100% MONEY BACK GUARANTEE: If for any reason you're not absolutely delighted, we'll refund all your money back it's that simple.



'S THE LATES MINTSCIENTIFIC, 5-IN-1" BLOOM PHASE TECHNOLOGY ...



GROWERS HAVE USED TO WIN EVERY MAJOR GROWING COMPETITION IN THE WORLD!

GRAND MASTER

SENSI BLOOM

SENSI BLOOM

Now, you don't have to be an Expert, Grand Master Grower in order to get bigger, julcier, more aromatic, and more potent buds from your plants. All you have to do is put the same secret grand master growers have used to win every major growing competition in the world to use with your plants.

Here's the story; recently, a respected team of over a dozen plant scientists and graduate assistants discovered, after 109 man-years of research, how to combine 5 different plant improving formulas into one breakthrough 2-part bloom base nutrient.

What's more: you'll never have to worry about pH issues again because these scientists have completely eliminated the need for pH-PPM metering or even adjusting pH levels with their patented pH-PerfectTM Technology.

All this in effect means it is now possible for even the most inexperienced hydroponics rookie to start experiencing "pro level" juicy yields and buds!

The "Secret" 5 Part Plant Maximizing Formula and How Science Ensures Get You Bigger, Julcier Buds From Your Plants Because of It!

Ingredient #1 ensures that the nutrients in this formulation get into your plants as quickly as possible. It's an organic surfactant called Wet Betty and it does something every plant grower wants

... Surfactants are wetting agents that lower the surface tension of a liquid (in this case, nutrient-rich water) allowing easier spreading and uptake of nutrients into your plants. Which of course means your plants will get the organic nutrients they crave faster and more efficiently than ever before which greatly increases your plant's bloom yield,

Ingredients #2 and #3 are humic and fulvic acids. These organic acids give your plants an edge when it comes to growing quicker, stronger, and bigger ... with less stress ..., than with any other formulation. Here's how .

The humic provides natural carrier compounds that transport nutrients and vitamins into plants more efficiently, so your plants grow faster and have stronger cellular processes. In addition, the fulvic here gives you quicker nutrient absorption, natrient transport, and more cellular metabolism. Together, they work synergistically to maximize the time your plants spend in bloom.

And ingredient #4 completes the package because it's ...

WHEELS OF PROGRESS

Any shreds of doubt that cannabis is good medicine were eliminated once and for all at this year's Patients Out of Time conference. Now, only ignorance stands in the way of its acceptance.

Story & photos by Dan Skye

At this year's Patients Out of Time conference in Rhode Island, the latest studies and reports focusing on the therapeutic value of medical marijuana were once again disseminated to health professionals and the media. Of course, whether the mainstream media will ever perform its task honorably and report the truly miraculous news regarding cannabis continues to be an open question. Regardless, the detractors of medical marijuana have become isolated by their stubborn—if not downright perverse—refusal to recognize the stark truth: Cannabis *is* the "medicine plant." And that was precisely the theme and formal title for the sixth Patients Out of Time Clinical Conference on Cannabis Therapeutics.

Patients Out of Time is an organization founded by the husband-and-wife team of Al Byrne and Mary Lynn Mathre. Mathre, a registered nurse, is one of the nation's leading patient advocates and has been instrumental in bringing the American Nurses Association onboard as supporters of medical cannabis. Byrne, a retired Navy officer, works with the remaining federally supplied cannabis patients enrolled in the Compassionate Individual New Drug program. The biannual conference that Mathre and Byrne oversee has gained a reputation as the most prestigious and comprehensive forum on medical marijuana in the world.

Although this year's lecturers categorically affirmed the therapeutic benefits to patients who use cannabis, the keynote speaker at the conference reminded attendees that these findings are not as earth-shaking as they may seem. Dr. Raphael Mechoulam, a professor of medicinal chemistry at Hebrew University in Jerusalem, whose primary focus is the chemistry and pharmacology of cannabinoids, cited physicians and scholars from 2,000 years ago who were equally convinced that cannabis is the "medicine plant."

Pliny the Elder, the famed Roman naturalist of the first century, noted that cannabis roots boiled in water offered relief for gout, cramped joints and violent pain. The Greek physician and botanist Pedanius Dioscorides, of the same era, also wrote of its



anti-inflammatory properties. And as late as the 19th century, the highly influential English physician Sir J. Russell Reynolds wrote: "For the relief of certain kinds of pain, I believe, there is no more useful plant than cannabis within our reach."

Dr. Mechoulam led off the conference with this declaration: "The mammalian body has a highly developed immune system, whose main role is to guard against protein attack and reduce the damage caused. It is inconceivable that, through evolution, analogous biological protective systems have not been developed against non-protein attacks." He then posed the question: "Are there mechanisms through which our body lowers the damage caused by various types of neuronal as well as non-neuronal impairments? The answer is, of course, positive, and I assume that endocannabinoid-like molecules are part of numerous protective systems which work in conjunction with the immune system and with various other physiological systems."

Dr. Mechoulam also noted that the human brain has abundant cannabinoid receptors and that many vital physiological processes are affected by endocannabinoids—everything from appetite and blood pressure to digestion, inflammation, pain, memory and mood, just to name a few.

Dr. Mechoulam's presentation served as a worthy prologue to the wealth of material presented by the 30-plus speakers featured. By the end of the conference, an overwhelming consensus had been reached: that the cannabinoid CBD (cannabidiol) serves as a healing agent for a variety of conditions. In fact, Dr. John McPartland, a professor of family

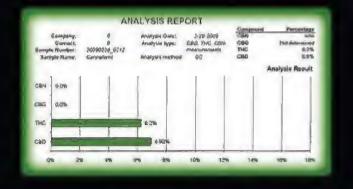


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Great taste and aromatic profile: Cannatonic was awarded the Sativa Cup at the 21st High Times Cannabis Cup in Amsterdam.





Cannatonic



medicine at the University of Vermont, stated that if Marinol (synthetic THC) is considered a "silver bullet," then herbal cannabis—or, better yet, a CBD-rich strain—is a "synergistic shotgun" in which the "many constituents work by multiple mechanisms to improve the therapeutic activity of THC" and "mitigate the side effects."

Numerous speakers emphasized that CBD is central in pain and anxiety management and has also shown efficacy in the treatment of cancer, epilepsy, inflammation and diabetes, as well as improving brain and heart health. Additionally, Dr. Heather Bradshaw of Indiana University discussed the remarkable results that cannabis has shown in treating reproductive and pelvic pain, which affects up to 30 percent of women globally.

Mark Ware, a professor of family medicine at McGill University in Montreal, assured the conference attendees of the safety of cannabis as medicine; in case studies, he noted, no differences in the biochemical, liver, renal or endocrine functions of patients using cannabis were shown. And Dr. Denis Petro, a neurologist and drug researcher, offered a glowing appraisal of cannabis as a means for managing the symptoms of multiple sclerosis.

Dr. Donald Abrams, the chief of the hematology/oncology department at San Francisco General Hospital, reviewed his own studies showing that cannabis interacts safely with opioids like morphine and oxycodone—which may, in fact, allow for the longer use of opioids

'For the relief of certain kinds of pain, I believe, there is no more useful plant than cannabis within our reach.'

at lower (and safer) doses. Dr. Abrams also challenged the wisdom of denying opioids to patients who tested positive for cannabis.

Michael Krawitz knows a bit about that firsthand: He's a disabled vet who found that cannabis, in conjunction with a low dose of prescription medication, works best for his chronic pain, the result of a serious motorcycle accident he suffered while stationed in Guam. Unfortunately, in the state of Virginia, where Krawitz lives, medical marijuana can only be legally used for cancer and glaucoma. Even worse, the policy of the Veterans Administration is to *refuse* medication to patients who test positive for pot. As a result, Krawitz has become a tireless advocate for veterans and medical-marijuana patients alike. He spoke of the terrible disservice that America does to its returning veterans as they seek out the means to deal with the effects of their injuries and, very often, the post-traumatic stress disorder (PTSD) that affects thousands.

The presentation of Steve DeAngelo, the executive director of Harborside Health Center (HHC) in Oakland, CA, was also revealing. It came on the heels of HHC's recent announcement that it was commissioning growers to cultivate CBD-rich strains, which reportedly reduce the more unpleasant side effects of THC. (For newcomers to cannabis medicine, the high THC content can be disconcerting; CBD-rich strains offer a more "direct" pathway to treating pain and anxiety.) But perhaps no one was more far-reaching in his professional assessment of cannabis than Dr. Robert Melamede, a professor of biology at the University of Colorado: He posited the notion that the endocannabinoid system is actually responsible for the evolution of human intelligence and encouraged everyone present to smoke more and be healthy.

Those who already champion cannabis would hardly dispute Dr. Melamede's claim. However, the federal government remains cloistered in its Drug War rhetoric, ever resistant to the cannabis wave that is now cresting. Cannabis science desperately requires the aid of our lawmakers: Researchers and clinicians need to be assured that their efforts to explore the many healing effects of the plant will be legally sanctioned, and that the results of their studies will be acted upon. Until that time when our leaders actually function as servants of the people, millions will continue to be denied the badly needed benefits of this "medicine plant." ¥

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by David Bionenstock and the aditors of High Times magazine

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CHANGE IN THE HEARTLAND

Support for drug-policy reform is growing in the Midwest and South. By Amber Langston

Recent polls have shown that the Midwest and South are the two parts of the US that least support drug-policy reform. But that is about to change. Affectionately referred to as the "New Northeast" (after SSDP's most wellorganized region), Midwest SSDP is proving to be the fastest-growing region of powerful new chapters in the country. As a Midwesterner myself, I am incredibly inspired by the change I see occurring in my cousins' mindsets. A new conversation has begun, and the voices of America's youth are coming through loud and clear.



Amber Langston

As one example, amazing things are happening in Ohio, where new chapters have sprung up at Hiram College, Kent State University, Miami University and the University of Cincinnati. Kent State hosted Ohio's first SSDP State Strategy Summit, and all hands are on deck in preparation for next year's legislative session. Watch out—these kids are going to make Ohio the 15th medical-marijuana state for sure!

In Michigan, where SSDP was integral to passing the 2008 statewide medical-marijuana initiative, our burgeoning network of nine chapters has successfully held two state-strategy summits; is working toward a statewide medical-amnesty policy that includes all drugs; and has been partnering with patient-advocacy groups for effective implementation of the new medical-marijuana law. And, of course, the Hash Bash at the University of Michigan in Ann Arbor is always a success!

Students in Illinois have also been working toward a statewide medical-amnesty policy and are

creeping ever closer to passing medical marijuana through their state legislature. Special props go to the chapters at Roosevelt University, where members participated in the 2009 Walk for Recovery with the Illinois Drug Policy Consortium, and at Northern Illinois University, which built an impressively large public coalition in a mere matter of days from their inception. Just a little bit of elbow grease and some sensible statistics, and the Republican candidate for state attorney in DeKalb fell in love with SSDP.

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Likewise, the medical-marijuana movement in lowa, Minnesota, Missouri and Wisconsin has recently taken off with help from SSDP's foot soldiers. While students in Iowa were testifying before the Iowa Board of Pharmacy's medical-marijuana hearings, their counterparts in Wisconsin held a massive day of action across the state, logging hundreds of calls to their representatives in support of patients' rights. With Iowa's Board of Pharmacy now recommending that marijuana be rescheduled as a substance with medical value, and with support building in the legislatures of Minnesota, Missouri and Wisconsin, SSDP is stepping up to the task.

As for Indiana and Kentucky—y'all are next! I hope to hear soon from students in those states, and throughout the Midwest and South, who are ready to join us as allies in the fight for justice and truth. Peace on the Drug War! *

Amber Langston is the SSDP Outreach Director for the Midwestern and Southern Regions.

FREEDOM FIGHTER THIS VETERAN'S STILL FIGHTING

"More veterans have committed suicide since 2001 than we have lost on the battlefields of Iraq and Afghanistan—each one a tragedy." Those words, uttered by US Secretary of Veterans Affairs Eric Shinseki last Octo-

ber, underscore the crisis of post-traumatic stress disorder (PTSD) affecting our returning troops.
New Mexico is the only medical-marijuana state where PTSD is specifically listed as a qualifying condition under the law (though it also qualifies in California under Prop. 215 language that allows physician recommendations "for any other illness for which marijuana provides relief"), and more people are registered as medical-marijuana patients in New Mexico for PTSD than any other condition.
However, Veterans Administration doctors are forbidden from recommending this state-authorized medicine because of the federal ban on its use. Vets even report being denied their prescription pharmaceuticals if they test positive for using cannabis medicinally.

Paul Culkin is an Iraq War veteran living in New Mexico who decided to do something about it. Like so many others, this former Army sergeant found that the drugs prescribed to him by the VA's doctors left him feeling like "a zombie." He turned to medical cannabis and found that it calmed the PTSD without numbing his mind and doping his body and "made me a father and husband again."

Culkin leads the New Mexico Medical Marijuana Patients Group, which he formed by networking with other vets through Craigslist after attending the International Drug Policy Reform Conference in Albuquerque last November. Since then, he has made local news by opposing a proposed state tax on medical marijuana. He also debated Dr. Andrea Barthwell, a former deputy drug czar under George W. Bush, on Fox News Channel concerning the use of cannabis for treating PTSD.

Paul Culkin is a perfect example of what can happen when committed people attend drug-law reform conferences and take the next step of organizing their fellow like-minded citizens at the grass-roots level. This Iraq War veteran is a true Freedom Fighter!

Ask Dr. Mitch

Dr. Mitch,

I keep hearing that marijuana use is on the rise for older adults, but when I look around the retirement home, I can't find any. Is this increase just propaganda?

Clay Moore

Hi Clay,

Although recent data indicate that folks age 50 and above have increased their marijuana use in the last few years, they're still in the minority only about 5 percent of them used pot in the past month or so.

One of the parents in my PTA thinks that drug problems come from low self-esteem. I find this idea too simplified. Can you help me out? *Concerned in Iowa*

Hi Concerned,

Decades ago, a lot of drug-prevention programs focused on building self-esteem—and some of them, perversely, made kids think that they were invulnerable to drugs, which actually led to more drug use. For some new perspectives, you might want to check out my book, *The Parents' Guide to Marijuana*. Also, my buddy Steve Sussman has created an extensive program called "Toward No Drug Abuse" that is substantiated by research. For more information, go to tnd.usc.edu.

I'm having a debate with a censor about marijuana in the movies. He says that watching movies about marijuana will lead people to use it. This can't be true, can it?

0. Welles

Hi 0.,

Some data do show that people who use cannabis have seen more movies depicting cannabis use, and these studies have been getting a lot of press. But I just analyzed some data of my own showing that cannabis users see more movies of *all* kinds—it doesn't matter if they're about cannabis or not. In fact, movies about cannabis don't cause to people use it, but cannabis users sure do love the movies!

Dr. Mitch Earleywine, Ph.D., is an associate professor of psychology at SUNY Albany. He is the author of Understanding Marijuana and The Parents' Guide to Marijuana. Got a question for Dr. Mitch? Email him at 420research@gmail.com.



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VIVA *SATIVA!*

Six reasons legalization is on the way.

While most well-informed HIGH TIMES readers can probably cite hundreds of good reasons why cannabis prohibition should end immediately, I'd like to hone in on what NORML believes are the top six reasons why these long-sought reforms are finally coming about.

MORMLIZER

It's the Economy, Stupid Just as the Great Depression helped end alcohol prohibition, the current crushing economy is causing otherwise prohibition-supportive decision makers to re-examine their fiscal priorities. As a result, economists, editorial boards, columnists, politicians and commentators of all political stripes increasingly support ending the federal government's counterproductive prohibition of cannabis.

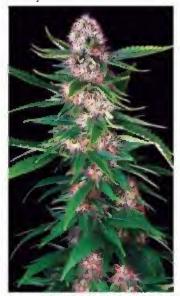
Baby Boomers or Baby Bongers?

Men and women between the ages of 50 and 70 years have taken over the country's institutions of government, law, medicine, science, education, media and entertainment. Baby boomers have primary and secondary experience with cannabis that the socalled World War II generation simply doesn't possess.

The Public's Acceptance of Medical Cannabis

The passage of Proposition 215 in 1996 was a genuinely epochal event: California citizens—who comprise oneeighth the population of the United States—voted to endorse the medical use of cannabis. This set in motion a domino-like effect that has currently resulted in 14 states (plus the District of Columbia) legalizing patient access to medical cannabis for nearly 90 million Americans.

In states such as California, Colorado, New Mexico and Montana—and very soon in Rhode Island, New Jersey, Maine and DC—lawful patients enjoy so-called "Main Street" retail access to hundreds of strains of cannabis, "medibles," tinctures, balms and hash products.



Worldwide Web of Weed The Internet has been transformative for cannabis-law reformers, helping us politically organize consumers, disseminate information, debunk prohibition myths and raise money. I've been at NORML so long I pre-date the Internet, and I can tell you from firsthand experience: A busy day at NORML pre-Internet pales in comparison to what's being accomplished today.

NORML's webpage and podcast attract over 30,000 daily visitors, who download millions of pages weekly in the privacy of their own homes. And there are now over one million "friends" within NORML's Facebook universe.

Whereas the mainstream media has largely failed cannabis consumers and society as a whole, the Internet provides citizens with ready peer-to-peer communications, unprecedented social networking, and unfiltered information (uncensored by either the government or the corporate media) that empowers and fuels reformers' modern advocacy efforts.

Opposition to Cannabis-Law Reform Recedes

In general, do business, medical, educational or religious communities organize against groups like NORML? No.

Then who are the supporters of cannabis prohibition? The five pillars of pot prohibition should be familiar by now: Law enforcement; government agencies born of prohibition (i.e., the DEA, NIDA, etc.]; the drug makers who'd have to compete with legal cannabis (tobacco, pharmaceutical and booze companies); governmentfunded "parents' groups" (i.e., CADCA, NFIA, etc.); and companies that prosper from drug-testing services, private prisons and high-tech drug-trafficking detection devices.

Prohibition Fatigue?

Having endured 73 years of unsuccessful cannabis prohibition, a national weariness seems to be setting in. Maybe, just maybe, after 20 million arrests (90 percent for simple possession alone), hundreds of billions in tax dollars wasted or uncollected, children having more access to cannabis than alcohol or tobacco, and the destabilization of America's borders—all basically for naught—a solid majority of Americans are ready to support legalization.

Currently, in national polling, about 44 percent favor legalizing adult cannabis use. That total is up to 56 percent in California, where people go to the polls this fall to vote on—and, hopefully, pass—a legalization initiative.

Are you and your friends ready to get involved, make a difference, and help end cannabis prohibition once and for all? Please join NORML today and/or support the California legalization initiative (taxcannabis2010.com). –Allen St. Pierre, executive director of NORML Visit norml.org or call 888-67-NORML.

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THE GREEN REVOLUTION

Adapting the lessons of industrial agriculture to small-scale indoor cannabis cultivation ... before Big Ag gets the chance. By Dirty Dave

If the world's mighty, trillion-dollar-a-year agribusiness conglomerates ever got their hands on poor, defenseless Mary Jane, how exactly would they grow her, particularly to service the "high-grade" market that would undoubtedly survive the end of prohibition? With legalization literally on the ballot this November in California—and coming soon (hopefully) to a state near you—no doubt that discussion is already heating up in the boardrooms of Monsanto, Cargill and the other multinationals. Or perhaps they're simply dusting off their business plans and cultivation production designs from the last time it seemed like the weed might actually be set free.

For most stoners, and especially growers, the prospect of corporate control of the cannabis supply offers a mixed bag of pros and cons, hopes and fears particularly for those who depend on marijuana cultivation for part or all of their income. In the meantime, White-Collar Boy from Northern Cali has decided to learn what he can from the growing methods of the giant agribusiness concerns and apply it to indoor marijuana production before they get the chance.

A self-described "former wage slave," White-Collar Boy earned an engineering degree in college and put it to use in Silicon Valley's semiconductor industry, basically "working for the Man" and making good money, but not liking it much. He'd never tried cannabis, but once he did, it took less than two years to quit his job, open up a hydro store, and start devoting his mental energies to the much more interesting challenge of trying to design the world's best and most efficient marijuana growroom.

Perhaps the biggest innovation that White-Collar Boy has adopted from his study of agribusiness methods is what he calls a "copy-exact mentality," a concept that literally goes back to the first factory assembly lines and stresses that uniformity in design and execution will yield predictably positive results, time after time, so long as the initial design is sound and scrupulously replicated. The "copy-exact mentality" also allows future improvements and innovations to be integrated throughout the operation in a systematic manner, after being tested and approved on only one specimen of the design. For example, if slightly upping the CO₂ levels during the vegetative stage, or lowering the level of a certain nutrient during flowering, yields positive results in one controlled growroom, that same adjustment should produce the same positive results in every "exact" copy of that room.

So, while outdoor agriculture is forced adapt to the local climate and even daily variations in the weather, with indoor grow ops, only conditions within the controlled environment will produce the necessary cause-and-effect on the plants. This allows indoor growers to apply the scientific method much more precisely, adjusting only one variable at a time and carefully monitoring the results.

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"My concept downstairs has been successfully replicated more than 100 times all across the country," White-Collar Boy says as he leads the way to the hidden entrance of a legally operating medical-marijuana growroom. "It's all founded in math and physics."

Although novice growers with limited experience and start-up capital probably shouldn't attempt to get up and running by replicating White-Collar Boy's entire 128-plant setup from scratch, there are certainly lessons to be learned in almost every corner of this vibrant indoor garden; it is also a blueprint of what to work toward if you eventually want to expand the size of your own operation. White-Collar Boy says his main motivation for setting up this "research and development" space was to have somewhere to test existing products before he decided to carry them in his store, as well as a place to develop and test his own innovations.

The first unique quality of the room that White-Collar Boy points out again, standard agribusiness procedure—is the fact that nothing's attached to the walls or ceiling. Instead, sturdy "grow stands" that he designs and manufactures himself accommodate the lights, ballasts, light movers and fans. The grow stands, made of powder-coated steel, feature pre-drilled ballast-mount locations that let him hang his lamps safely and easily, without drilling holes or searching for studs. Not only does this make the room easy to set up and break down (particularly in a hurry), but it also protects the home he's growing in from permanent damage—always a good idea whether you own the place or rent it.

Next, White-Collar Boy points out a truly "revolutionary" feature of the operation. As part of an overall effort to boost energy efficiency—not only to save money on power bills, but also to lower the end product's carbon footprint—he has installed Solar Revolution light movers. Although he didn't design the product himself, White-Collar Boy says he bought the patent from the developer and then "brought it up to modern manufacturing standards,' including high-stress bearings and instrument-grade motors, all-metal housing, steel arms and a detachable six-foot cord—with every unit handbuilt and factory-tested in the US.

Hung from the aforementioned grow stands, the Solar Revolution light movers can accommodate up to eight lights at once—if they're lightweight and will typically rotate them 90 degrees in one direction, before reversing course and covering the same area in the opposite direction. The movers can also be programmed to cover 180- or even 355-degree rotations, depending on the grower's needs. Those using a mix of metal-halide (MH) and highpressure sodium (HPS) lights require the increased rotation radius to ensure that each plant receives both spectrums in steady amounts.

Solar Revolution light movers bring more lumens to the plants for less money.





By slowly moving lights across the top of the garden canopy, these movers also provide a more even distribution of light, ensuring that the tallest plants directly beneath the lamps don't "burn out" from the intense heat of constant direct light, and that the smaller plants at the exterior of the room don't get shortchanged. Light movers also allow a grower to penetrate the canopy with light from many different angles, so there are no "hot spots" (a strategy that agribusiness engineers call "shadow shifting"). The Solar Revolution setup even has a built-in "clutch-driven system," meaning that it won't get stuck, strip its gears or break if the moving mechanism butts up against an obstacle, but will simply switch directions and continue working.

In White-Collar Boy's room, six 1,000-watt lights cover 128 plants divided into two square plots of 64 plants, with three lights over each plot. While most growers would mount eight or even 10 lights over this same area, White-Collar Boy says that additional bulbs would bring "diminishing returns," meaning that the increased yield wouldn't justify the time and expense of acquiring, installing, and running the additional lights and ballasts. He also credits super-efficient Bell Lighting Technologies systems-which include bulb, ballast and reflector, all designed to fit and work together-for helping him do more with less. Based on his own experiments, as well as discussions with lighting engineers and manufacturers, White-Collar Boy strongly recommends standard ballasts, insisting that digital ballasts will burn out bulbs at an increased rate that negates any energy savings gained during their lifespan.

Another significant innovation in this room, once again inspired by White-Collar Boy's study of agribusiness techniques, is the ductless lighting system. The high-intensity discharge (HID) lights used by indoor marijuana growers produce a lot of heat, which can build up in the room and stunt plant growth if it's not properly ventilated. Most growers, therefore, "duct" this hot air directly from the lights to the outside of the room in order to maintain proper temperature. But White-Collar Boy says this ducting can be eliminated by calculating the BTU load of the lights and carefully matching it with the capacity of an air conditioner. He also recommends replacing all of the air in the growroom once every minute if it's not CO₂-based.

In this room, outside air flows in through an intake carbon filter (to remove impurities like mold), moves through the room rapidly, and then escapes through an exit carbon filter. The air conditioner, in turn, maintains room temperature and humidity when the CO₂ and lights are on and the fan exhaust is off, while the exhaust circuit has yet another carbon filter—this time to remove the smell of freshly growing cannabis before it leaves the growroom during the "nighttime purge."

White-Collar Boy houses his plants in growing trays that are also based on agribusiness designs, in a medium that's 50% coco and 50% Blue Ribbon potting soil by Dr. Earth, plus microbial inoculants and a full regimen of fertilizers from Humboldt Nutrients. To feed and water the plants, he has a top-feed drain-to-waste system, with the runoff typically used to feed and water an outdoor garden set up not far from the growroom.

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With 128 plants to take care of and no one to help, White-Collar Boy relies on the automated top-feed drip system to ensure that each plant receives water and nutrients in consistent amounts. He has also added his own innovation to this time-tested drain-to-waste technology, designing a manifold that feeds each plant as part of a parallel distribution rather than a sequential one, ensuring a uniform distribution from plant to plant. This special design, dubbed a "uni-flow" irrigation kit, also makes it easy to move the plants into and out of position, which is particularly handy if you need to quarantine any due to pests or diseases. The tubes also flow freely enough to run fish emulsion without clogging.

White-Collar Boy reports that the automated system requires very little time of the grower's time to keep running—20 minutes twice a week to dose the tank, and another 20 minutes once a week to flush. Overall, he reports, the grower spends just six hours per week in the growroom—mostly to check on all of the systems, remove dead leaves, and handle the watering and feeding. The only drawback to all this automation is the tendency to get complacent and miss the opportunity to fix small problems before they get bigger.

But what about the plants themselves? As mentioned earlier, White-Collar Boy has divided his 128plant garden into two equal squares, one a "production garden"—or what he calls his "control"—featuring medical-grade Granddaddy Purp (and nothing but Granddaddy Purp), the other a "research garden"—or what he calls his "variable"—where he experiments with a mix of more exotic strains such as Chocolope, Trey Dog, Blue Dream, Pineapple Thai and Afghooey. The Pineapple Thai, a nearly purebred sativa that grows far taller than its cannabis colleagues, presents a particular challenge—but since the room's lights can be individually raised or lowered on chains, White-Collar Boy is able to adjust accordingly for that quadrant while simultaneously keeping the lights at a "normal" level for the traditional indoor strains.

This focus on "total control" gets even more intense when we leave the growroom and White-Collar Boy shows off his fully automated Intelliclimate climate controller. Designed to monitor and automatically adjust the room's temperature, humidity, light cycle and CO_2 level, the controller works to maintain a set of ideal settings supplied by the grower, turning the lights off and on according to a set schedule, and adjusting the ventilation, CO_2 and temperature in an integrated way that reduces any waste of electricity or CO_2 . These functions can all be adjusted by computer via remote-access software, and the program even records and stores the garden conditions in real time so they can be reviewed retroactively, and the lessons learned applied to future efforts.

Best of all, the Intelliclimate hooks into a personal computer via a standard USB cord, which means the entire system can be adjusted and even controlled via remote access 24 hours a day from almost anywhere. A security feature even sends a text message to the grower if the lights fail, any reading moves into a predefined danger zone, or the security of the operation has been compromised by outside intruders.

With all that said, this HIGH TIMES reporter certainly hopes that legalization takes the incentive out of indoor cultivation entirely and leads growers back out into the natural, healthy, environmentally friendly sunshine to cultivate our favorite crop as nature intended. In the meantime, it's nice to see someone taking the methods of agribusiness and using them to grow the best and most energy-efficient medical marijuana possible. *

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HARVESTING

As more and more growers turn to machines in order to trim and manicure their bounty of buds, HIGH TIMES investigates how they really work for commercial crops. Story & photos by Erik Biksa

Untrimmed tops are loaded into the unit for processing.

Harvest time is met with excitement, sometimes a little bit of nervousness and always a lot of work. Even smaller-scale growers can appreciate the amount of time and effort that goes into harvesting, trimming and drying their yield of buds. Historically speaking, this has always been done by hand. While bigger fan leaves can be easily plucked away from buds, trimming the sugar leaves off is a tedious process that often involves a pair of scissors.

Aching hands, backs and necks are common symptoms that trimmers endure to bring the harvested crop from "raw" to "finished." It has to be done, and it has to be done well: Poor harvesting and processing practices can really hurt the quality of the yield that growers worked so long and hard to achieve.

Thankfully, in recent years, there has been an evolution in the trimming devices offered as alternatives to the laborious scissors method. While scissors may be fine for a closet cultivator, growers on any kind of larger scale are looking



to improve their harvesting capabilities. Besides saving money on labor and getting their crop ready for the drying racks faster, a faster turnaround means that the growroom can be filled with new plants more quickly. If the crop can be harvested in a day or two instead of a week, it adds up to more production time over the course of a year for continuous producers.

Automated crop-trimming machines vary in their designs and output capabilities. There is something out there for almost any budget and scale of grower. For small to medium-sized har-



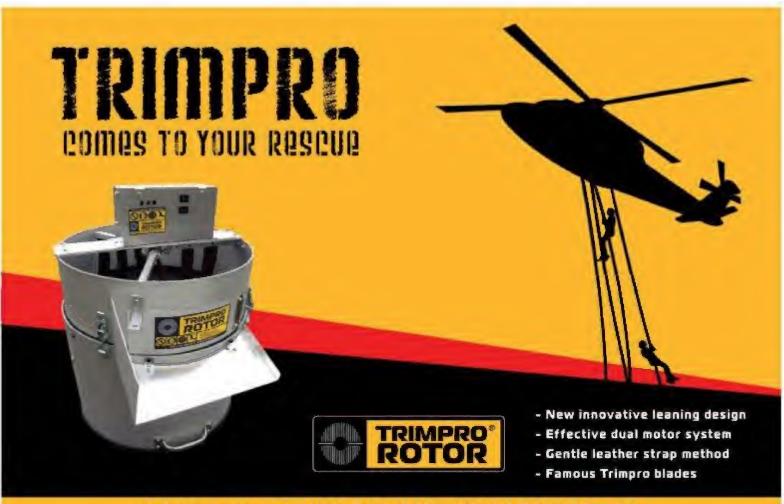
vests, the semi-automatic upright bud tumblers with a rotating cutting wire fit the bill perfectly. Basically, you just place your buds (fan leaves plucked off) onto a metal screen, pop the lid on, and either hit the power switch or crank by hand, depending on the model. In about 60 to 90 seconds, your buds will be perfectly trimmed. You can harvest a healthy 1,000-watt yield in less than a few hours using this method.

The way it works is both simple and efficient. Rubber fingers inside the lid gently tumble and rotate the buds sitting on the mesh rack. At the same time, a cutting wire is rotating underneath, clipping off any leaf matter sticking out from the buds and collecting the trim below. Besides speed and ease of use, there are two advantages to this method: First, it's relatively quiet, and second, the trim is in great shape for further processing.

For serious crop-trimming needs, the industrial vacuum-operated machines with rotating drums and fixed cutting blades are the ticket. These machines can trim a pound of dry marijuana in less than 10 minutes with very little labor required by the operator. The most innovative models have a sorting table located on top of the machine; from there, buds are continuously fed into the unit by simply brushing them into an opening in the table. This drops the buds into one end of a rotating tumbler that runs the length of the machine. As the buds travel down the tumbler, any leaves sticking out are pulled toward the cutting bed by the suction created inside the cutting area by the industrial vacuum connected to the unit. By the time the buds reach the exit point, they have been completely trimmed of excess leaf material before being discharged into the collection bin below. Even the smallest buds come out perfectly trimmed—not only faster than doing it by hand, but often better.

These machines save huge amounts of time and can literally do a week's worth of trimming in the course of a well-planned day. The vacuum units make some noise, and the unit itself takes up some space, so a little bit of planning is usually in order (as it always should be when strategizing any large-scale crop processing). Another plus is that on some models, the operator can adjust the depth of the cut, creating the desired bag appeal they're after.

These devices don't replace people. Trimming machines all require an operator—and in the case of big industrial trimmers, a team of workers—to keep feeding them; because they work so fast, they can actually be a challenge to keep up with. But since they make everyone's job much quicker and easier, in the end, everybody wins. #



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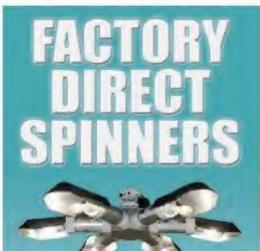


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MUNCHIES

REQUIEM FOR A HEAVYWEIGHT

Our cannabis culinarian remembers a day when Jack Herer took a step further. By Ashley Boudreaux

The infamous Chris Little called me from California with the heartbreaking news: "Jack died."

He didn't need to explain which Jack. In the New G Nation, there was only one Jack—Jack Herer, the Emperor of Hemp, Cannabisaurus Rex, the man, the legend ... Jack. I felt myself sinking into the bed as tears streamed down my face, into my ears, onto the pillow.

I can't remember exactly when I met Jack. 1996? 1997? The precise moment is inconsequential—I loved him instantly. We were introduced by Kevin Aplin of the Florida Cannabis Action Network. Indeed, without Jack, there would have been no Cannabis Action Network. The stones he threw at our ridiculous drug policies will cause ripples throughout generations of activists for years to come.

He was a giant teddy bear of a man with an infectious smile, a booming laugh and a mind that idled at 75 mph. I used to tease him and say that if we threw a microphone into a pool, he'd drown. Jack always had something interesting to say, and when he spoke, he captivated all those around him. He had an enormous intellect and an even bigger heart. He was irascible, incredible, and left an indelible impression on everyone in his glorious wake.

I guess it's fitting that I share an anecdote about Jack that only my closest friends have heard. I ran into Jack on my very first assignment for HIGH TIMES. I'd been obnoxious in my pursuit of an HT byline, so after a year of annoying one of the editors, he told me to interview Jiva, queen of the Rainbow Gypsy Tribe. He gave me no contact information and was undoubtedly aware that Jiva was en route to Oregon for HIGH TIMES' own WHEE Festival. I wondered if I was being set up to fail.

But Jiva and I had been good friends for



years—no way was I going to be deterred. So I hitchhiked across the country with \$100 (don't try this at home), bullshitted my way into the festival with the help of a hippie named Brother Bliss, and found Jiva.

While at the WHEE Festival, I ran into Gideon Israel of Rainbow Valley. We were relaxing in the shade when Jack Herer walked up, gave me a bear hug

and joined us. About two minutes later, Ken Kesey appeared, exchanged pleasantries with Gideon, and sat down to chat as well. It was the first time the Merry Prankster had met the Emperor of Hemp. I knew Jack, I knew Gideon, but Kesey was a legend to me. He had piercing blue eyes that would assess a person's soul in half a second, and I was stunned into silence. I was in the presence of greatness, a witness to history, sitting there with three counterculture giants at a table built for four. I shut the hell up for once in my life and just listened.

A young man stopped in his tracks in front of our table, mouth agape, and said something to the effect of "Holy shit, you're Ken Kesey! And Jack Herer!" He loaded a bowl of some tasty sweet and offered it up to the four of us. As Ken passed it to Jack, he shared his thoughts with nobody in particular.

"I don't care much for bowls," the Pranksterin-Chief intoned. "I prefer joints; joints don't belong to anyone." Then he passed the bowl back to the groupie-man with a half-smile and launched into an in-depth rant about farm subsidies.

Farm subsidies?

That's it, folks: The words of wisdom that I was so blessed to hear at this historic meeting of three great minds involved farm subsidies and the Zen-like detachment of joints. But I wouldn't trade that moment in time for all the dank in Oregon. I was there.

And now—alas—they're gone. *

FUNERAL POTATOES

I adapted this recipe from a dish that my cousin in Utah fed me recently; it's traditional to serve this comforting fare as part of a funerary repast in Mormon country. And since Jack has left us to join Ken Kesey at that great hippie festival in the sky, we can use all the comfort we can get right now.

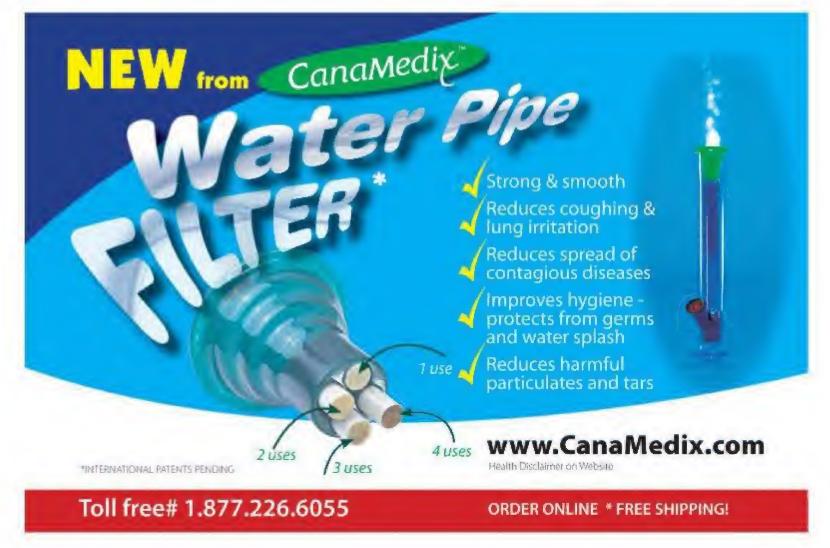
7 to 10 grams quality Cannabis sativa shake

- 10 tbsp butter
- 1 tbsp water
- 1 32-oz bag frozen shredded hash browns
- 2 cans condensed cream-of-chicken soup
- 1 pint sour cream

2 cups shredded sharp cheddar cheese ¹/₂ cup diced green-onion tops 2 tbsp minced garlic Salt and pepper to taste 2 cups corn flakes, lightly crushed

Combine ganja, butter and water in a double-boiler. Simmer gently over low heat for 40 minutes. Strain well and set aside. Preheat oven to 300°F. Combine soup, sour cream, cheese, six tablespoons of ganja butter, green onions, garlic, salt and pepper in a large bowl. Mix well. Gently fold in frozen hash browns and mix thoroughly. Spread mixture into a greased 9" x 13" pan. Cover with corn flakes and then drizzle the remaining ganja butter over them. Bake for 30 to 40 minutes. Stones 8 to 10.









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They look at life differently, society can't pigeon hole them or put them in box, and they see things where others don't.

Their ideas are sometimes out on the fringe, the ragged edge. They have to be, because they're open to the possibilities and realities that change the world.

Some see them as a fish out of water, trouble makers and oddballs. We see them as gifted, profound and uniquely brilliant.



DEAR DANKO

ANSWERS BY DANNY DANKO

LIGHTING UPGRADE

I'm planning to start a new grow cycle and I'm looking to upgrade my bulb. The last space I had was 3' x 3', with three plants at a time under a 400-watt metal-halide (MH) system switching to high-pressure sodium (HPS) during flowering. I want to go bigger, and I was wondering: If I get a 600-watt cool-tube system, is it possible to grow 12 plants within a 4' x 4' area? Is that enough space for all 12 *indica*-dominant plants? Better yet, is a 600-watt system powerful enough to cover a 4' x 4' area? Can I go bigger? My main question is on coverage, though I will eject plants as necessary. My plants finish off around 3 feet high. Thanks!

Dear D~V,

You will have no trouble at all lighting a 4' x 4' space with a 600-watt light. Twelve 3-foot-tall plants will be a bit crowded in that space, so you may want to spend less time growing the plants in their vegetative stage and induce flowering sooner in order to have enough room for the plants to mature.

Be aware that with higher-wattage light comes the added problem of more heat. The cool-tube system you mentioned pulls hot air away from the bulb, so you're already on the right track. Good luck on your upgrade!

GREEN CRACK?

Congrats on the column! I'm disabled and can't work a computer. Can you please tell me the lineage of the Green Crack strain as well as its flowering time?

Also, I've got a tip for your readers on getting resin off your hands after trimming. Instead of soap and water, use popcorn! That's right, eat a bag of buttery popcorn and, by the time you finish the bag, your hands will be clean of resin, and you'll also have an extra buzz from eating the trichome-soaked kernels. Thanks for your answers and time!

> Wheelchairs for Cannabis Hot City, Arkansas

Dear WcfC,

DEXS~V379

Sorry to hear about your condition. The unfortunately named Green Crack strain hails from Southern California and is very prevalent in the San Diego area. Available in many dispensaries in both bud and clone form, it's a very Kushy strain, but more on the sweet and lemony side, with less of the fuel and anise flavors and odors of the OG Kush.

Green Crack's original heritage is from a 1989 Super Sativa Seed Club (SSSC) Skunk #1 crossed with an unknown *indica* back in Georgia. Soon after, some clones made their way west. The Cali growers fell in love with this fast-flowThis Golden Nugget cluster was grown out in Hawaii using seeds acquired from marijuana-seeds.nl. The Jack Herer father and *indica*-dominant mother combine to produce huge and compact frosty buds.

ering, *sativa*-dominant strain that finishes in just under 50 days. Thanks for the popcorn tip, too! Sounds tasty.

WHEN TO FLUSH

I have a friend who has a friend who bought Gravity Flower Hardener. He knows that you're supposed to flush 10 to 14 days before harvesting, but the directions say to apply it for two consecutive waterings beginning about three weeks before the end of flowering. It also says that it can be applied with other nutrients; my buddy's using FoxFarm Tiger Bloom. The real question is, after he uses the flower hardener, how long should he keep using the FoxFarm before he flushes? And since Tiger Bloom is supposed to be organic, can he still use it after he flushes?

Jim A.

Dear Jim,

You are correct that plants should be flushed for 10 to 14 days, and that goes for organic nutrients as well as chemical ones. Always give your plants plain water for their last two weeks of growth in order to leach out the salts and minerals that have accumulated with every feeding. Your bud will burn smoother and taste much better, and you'll see a clean white ash on your joints instead of them burning like coal and constantly needing to be relit. Well-flushed cannabis is also essential

LEMON LIME

訪問

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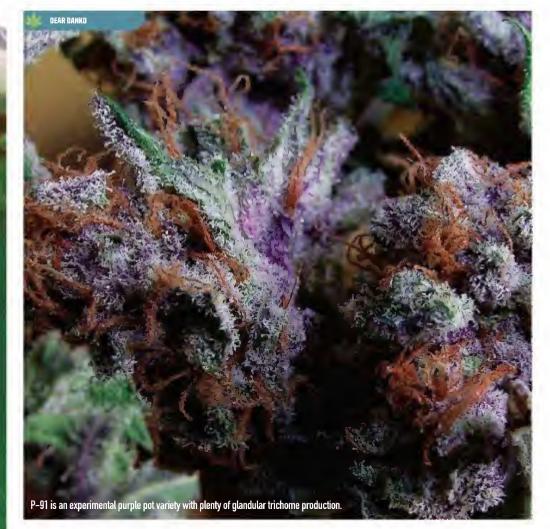
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SLUG BAIT

In the past, I've had huge problems with slugs and snails—just a couple of slugs can wipe out one of my seedbeds overnight! I've found that iron-phosphate-based molluscides are effective, safe, and okay for organic growing, but chemical products such as Ortho Bug-Geta are extremely toxic to birds, wildlife and your plants and should never be used. Is there anything else that can help rid me of these slimy little buggers? Tony in Maine

Dear Tony.

Another great way to handle slugs is to use simple beer traps. Bury some plastic or styrofoam cups almost up to their rims in your garden and pour in some cheap beer about halfway. The slugs will be lured into the cups by the yeast in the beer and then drown their sorrows (and themselves) in your bitches' brew. It's a highly effective (though admittedly kinda gross) way to deal with the pesky mollusks that hope to eat our plants and ruin our gardens.

GOT PURPLE

Dear Jav.

Why do some strains turn purple while others stay green until they're done? We've seen so many purple strains around here recently, and everybody has a different theory on how they get that way. One friend even said the growers use dye to color the buds!

Violet Jav

There are only two natural reasons that a canna-

bis plant or flower will turn purple; one is genetics and the other is temperature. Some strains inherently shift their coloring from green to many different shades of lavender as they mature due to their particular chosen traits, while others do so as a reaction to cold air towards the end of flowering.

Varieties such as Purple Urkel, Grape Ape, Purps and The Black were selected and bred for this particular trait. They tend to start changing colors from about four weeks of flowering on. Strains that turn purple because of colder temperatures usually do so in the last two weeks or so of their lives. No grower worth his watering can would ever use any kind of dye or adulterant in order to color their buds-it's dangerous, disgusting and unethical.

STRAIGHT TIME

As you know from the envelope, I'm currently in jail and don't have many prospects for a job when I get out. How many plants do I have to grow to get two pounds every 60 days?

Мо

Dear Mo,

Sorry to hear about your current situation. You should very carefully consider your future plans, as the cultivation of marijuana is treated just like other serious crimes in most states and could easily land you back in jail if you're not careful. So decide and plan accordingly.

As to your question, the amount of plants isn't important to achieving the results you're after. The crucial factors are how much light you can provide and how much space you can devote to your project. A perpetual harvest requires

multiple growing spaces in order to have vegetating plants ready to flower as soon as you've harvested the last batch. Invest most of your budget into grow lighting, ventilation/odor control and security.

When it comes to the amount of plants, less is more: Simply allow them to stay in their vegetative stage for a month instead of two weeks to grow bigger plants in larger containers. You'll be doing less work overall, and the consequences for you in a worst-case scenario are better with lower plant numbers.

DON'T GET GASSED

I have a friend who also grows buds. After having used CO₂ on my own organic garden and seen the increase in yield and quality, I recommended it to him, but he's totally against it. He claims that because he grows hydroponically, it won't do any good. I say nonsense! He's got a 12' x 12' room with four big containers with four plants each under two 1,000-watt lights. He's been yielding fine already, but do you think he could improve his harvests with more carbon dioxide?

K.B.G.

Ben N.

Dear K.B.G.,

Typical levels of carbon dioxide in the air are around 300 to 400 parts per million (ppm). Raising the level to 1,500 ppm using a tank or a generator along with a sensor and regulator will greatly increase your plants' ability to convert CO₂ and light into sugars through the process of photosynthesis.

Keep in mind that going higher than 2,000 ppm is counterproductive and can give you quite a headache as well. CO₂ is heavier than regular air, so always dispense it from above your plant tops. The gas will displace oxygen, so *never* go to sleep on your growroom floor when using CO₂!

COOL IT NOW

Dear Ben,

I have a very small growroom, just big enough for my six medical plants. I'm using a 1,000-watt aircooled HPS light and was wondering how many cubic feet per minute (cfm) of air do I need to evacuate in order to cool the light? The room is only about 100 cf. I tried a 250-cfm fan, but the temperature two feet below the light was still 115°F. Because of the limited height of the room, I need to substantially reduce that. Any ideas would be appreciated.

Unless you're willing to incorporate air conditioning in your growroom, your space may just be too small for a 1,000-watt light that, even when air-cooled, can generate a large amount of heat in a small area. Instead of trying to upgrade your fan, you may simply need to downgrade your light to a more manageable 600-watt or even 400-watt HPS and keep the fan you have. You'll find that your six plants will be happier in cooler temps, and you'll definitely have less issues with heat in your small space.

INDOOR AND OUTDOOR SEEDS

I've been searching around the Internet for cannabis seeds, and I have a question: What's the difference between "indoor" and "outdoor" seeds? I keep seeing them listed this way and I don't understand what

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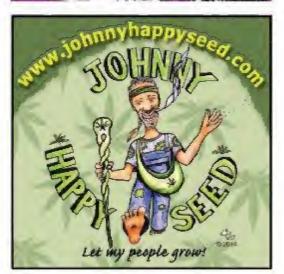
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they mean. Any help would be greatly appreciated! I'm struck numb in the brain.

Mark in TX

Dear Mark,

The difference is in the genetics of the plants that the seeds will grow into. Seeds more suitable to the outdoors grow stocky branches that have no trouble holding up the weight of heavy colas and can withstand the harshness of wind and rain. Plants from indoor seeds may need to be staked up in order to thrive and may be more susceptible to pests, molds and diseases. Many plants will do fine either indoors or out, but some simply can't hold up to the rigors of nature and require a bit more pampering to thrive. Others, such as extreme sativas with very long flowering times, shouldn't be grown outdoors in higher altitudes and colder climates with early frosts—they won't have nearly enough time to finish before they freeze and die. Choose your seeds wisely!

MISTY MORNINGS

Greetings. We've been growing our cannabis in the mountains outdoors using hoop houses and a greenhouse in order to extend the season. The problem is, with our typical foggy mornings, These nutrients were laid out for displaying purposes only. Always keep your fertilizers out of direct sunlight and in a cool dark place when not in use.

acre is



we've had some serious issues with molds such as botrytis. It takes hold and spreads quickly, infesting our plants and killing our medicine. What can we do?

Dear HM,

One innovative way I've seen greenhouse growers dry off morning dew is by using a wood-fired stove to burn off moisture with heat. Anything

Horse Meat

you can do to reduce humidity inside your growing areas will help keep the molds you're experiencing at bay, and sometimes just airing the place out can work wonders.

I also recently heard from my buddy Dark Cycle from the Pacific Northwest, who's somewhat of a reluctant expert on treating powdery mildew. He reports that harpin protein, the magic ingredient in the no-longer-available Messenger, is now being manufactured under the new brand name Employ from Plant Healthcare Inc. It's available over the counter or via the Internet in packets that each make 50 gallons to use as a foliar spray to combat plant molds and mildews.

UN-LED-ED

I have a walk-in closet that's 6' x 6' x 8'. The space my plants will be occupying is only 4' x 3'. I'm considering using either a 430-watt HPS setup or one of the new LED systems on the market. Which would you recommend? Also, can I still use CO₂ with the LED?

Dear Tex,

My recommendation is to go with the 430-watt HPS system for your particular needs. Almost all of the LED lighting systems we've tested and seen still need work on either the design level or pricing. As they continue to develop and become cheaper, LEDs may become more viable, but for the time being, stick with high-intensity discharge (HID) lighting for your primary source of lumens.

If you choose to go with the LED, rest assured that you can supplement your air with CO₂ just as you would with a typical HID or fluorescent lighting system. FYI, the Stealth Grow LED system featured in this issue's STASH Awards is the best one we've tested out so far.

WINE COOLER

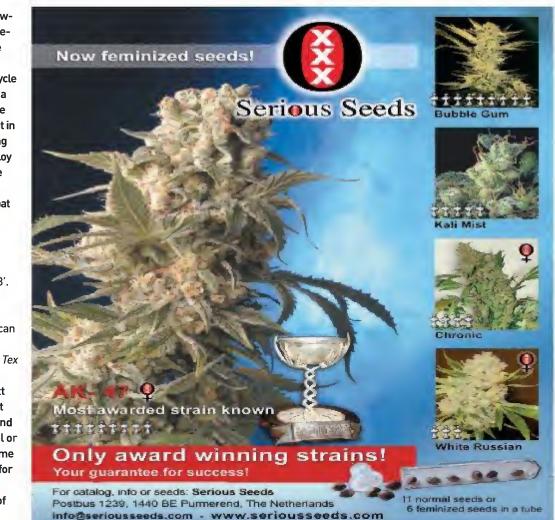
I wanted to share a little backwoods savvy from Washington State with your readers. Every year, we produce 15 gallons of homemade wine in 5gallon glass carboys. I put these in with my herb plants, and they really seem to enjoy the extra carbon dioxide given off during the process.

We've also got a group of bats that frequent the eves on the back of our house. I strategically place a bucket to catch the rainwater and bat guano, which I strain and feed to my plants. Just another way of making ends meet and still enjoying some of God's great green. My question: How much guano water would you recommend per liter of plain water? I've been using 1 tablespoon per liter with seemingly fair success.

Mike on the Mountain

Dear Mike,

Thanks for the wine tip! Hopefully, some of our readers will try that out. Just be sure to cover the carboys or wine jugs completely to avoid letting them get light. As for your home-collected guano water, why mess with a good thing? Keep feeding them as you have been and only increase the dosage if you see the leaves beginning to turn yellow, or decrease it if you see signs of burning at the tips of your leaves. Fresh guano can be quite "hot" for an organic nutrient, so only raise the dosage in small increments as needed. ¥





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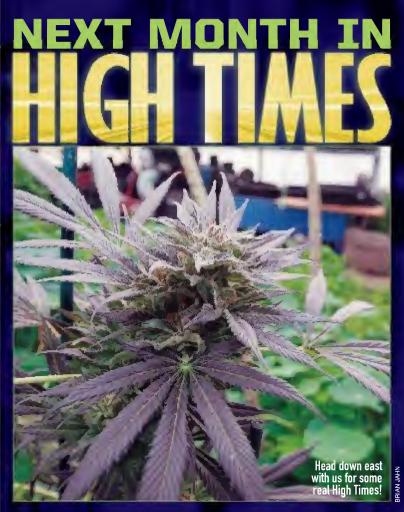
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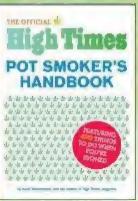




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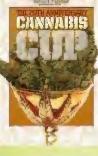
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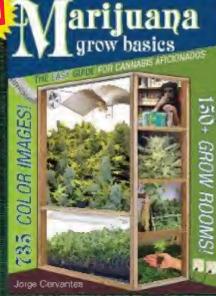
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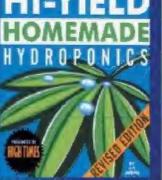
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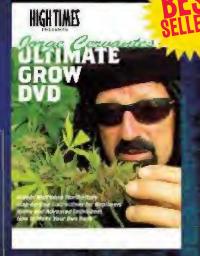
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